

THE IRON AGE

THE NATIONAL METALWORKING WEEKLY

August 31, 1950

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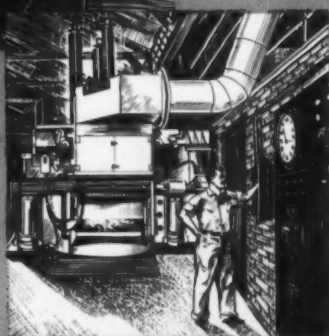


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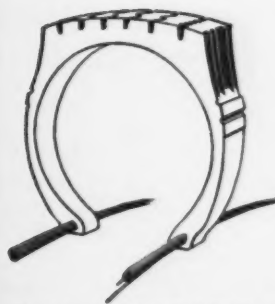
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THE IRON AGE

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Special Report



A machine tool rental plan financed by a big commercial bank marks a new approach to the machine tool replacement problem. Stymied by lack of tax credit for accelerated depreciation, many companies operate obsolete tools. This plan permits deducting the cost of new machinery as an expense before taxes. In many cases, it costs less to rent than to buy.—p. 51.

Issue Highlights



Job shop lots are simultaneously carburized to three different case depths in a continuous radiant tube pusher furnace. Close depth limits are held. Labor savings are considerable. Uniformity and minimum distortion are attained.—p. 61.



Subcritical graphitization in steel is not so rare as to be a laboratory curiosity. It should be of concern in all applications of stressed carbon steel at temperatures above 750°F. Experiments cited define the principles involved.—p. 64.



The great Quebec-Labrador iron ore project may come to life much sooner than thought a year ago. Construction of the vital railroad may be speeded by 2 years. As a result of additional drilling total reserves are now estimated at 2 billion tons. Government cooperation is assured.—p. 71.



With the Korean war over 2 months old aluminum producers find themselves virtually in the dark on rearmament aluminum requirements. Only tangible information so far is Louis Johnson's estimate that 100,000 tons will be needed in the next fiscal year.—p. 74.



Midwestern merchant iron consumers are scrambling for tonnage, as demand for all grades tops supply by a considerable margin. Although the market is not disorderly or panicky, premium prices are being paid and foreign iron is finding a quick home.—p. 75.

Coming Next Week



Economical forging operations depend upon simple, balanced die designs and proper die material selection. Part I of a two-part article tells how to simplify die designs to achieve balanced-section forgings. These mean lower cost forging and less subsequent finishing and heat treating.

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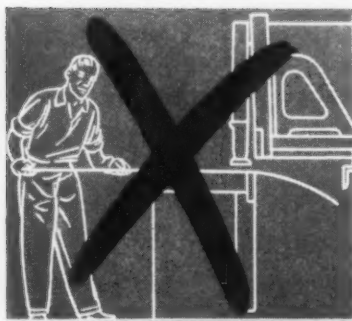
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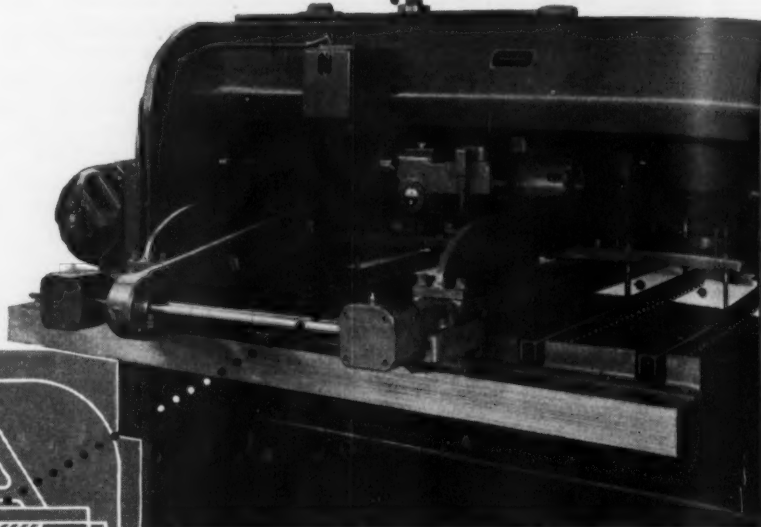
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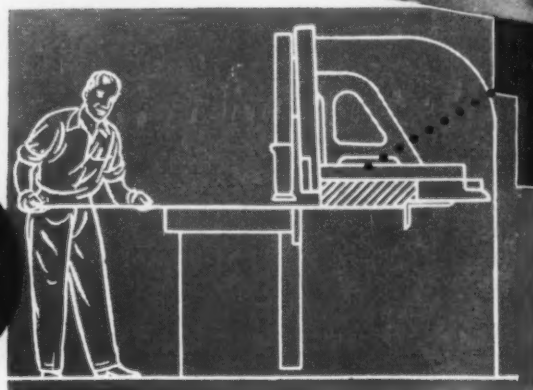
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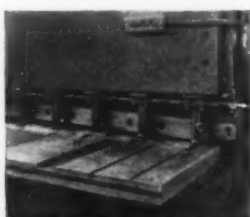
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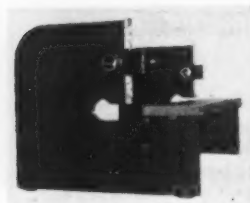
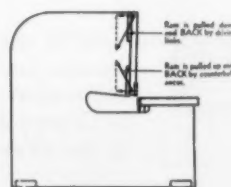


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Editorial

INDUSTRY VIEWPOINTS

The Four Horsemen Are Abroad

THE four horsemen of inflation, hoarding, speculation and confusion are out of the barn. It has taken over 2 months for Congress and the President to get around to locking the barn door. Whether the damage done can be repaired is doubtful.

The period of hysteria between the outbreak of the Korean war and when something was done by Congress and Government has been hectic. Not all the stories have been told. Buying has been rampant. Prices have gone up under pressure of heavy buying and other factors.

There must be a goat. The Administration and those Congressmen who fiddled while America smoldered in ignorance of what was happening will demand one. So let's place the blame where it belongs right now.

We were not prepared for the outbreak in Korea. That's not the people's fault. It isn't the fault of industry. The Administration is at fault.

We were not prepared to meet the onslaught of Communism and its way of doing things. That was not industry's fault. Where was the Administration? The money was there. The fear was there. Those who knew what Russia was after clamored to the high heavens. Truth is we had no leaders.

After the Korean war started, the people and business heard nothing from the government about the real state of things. Stunned was the only way you could describe the great mass of people. Mr. Truman's decision to back South Korea was the only thing he could do.

But after all that hullabaloo there was a vacuum. Was the Administration ready with voluntary allocation plans and other controls? No. Was Congress ready to operate around the clock and forget sectional and political differences? No.

Was industry told what would be expected of it? No. Were the people told the real horror they faced in years to come? No.

Later—much later—things began to roll. But by that time confusion, rumor, and whispers had done their worst. We were on our way to one of the biggest inflationary binges the country has seen.

People are people. They look to leaders. This time they had none. All we had was a slow motion picture of an ordinary government at work aided or abetted by an ordinary Congress. The few exceptions were like babes hollering in the woods.

Don't blame industry. Don't blame the people. When the four horsemen return to the stable, remember who forgot to lock the barn door.

Tom C. Campbell

Editor

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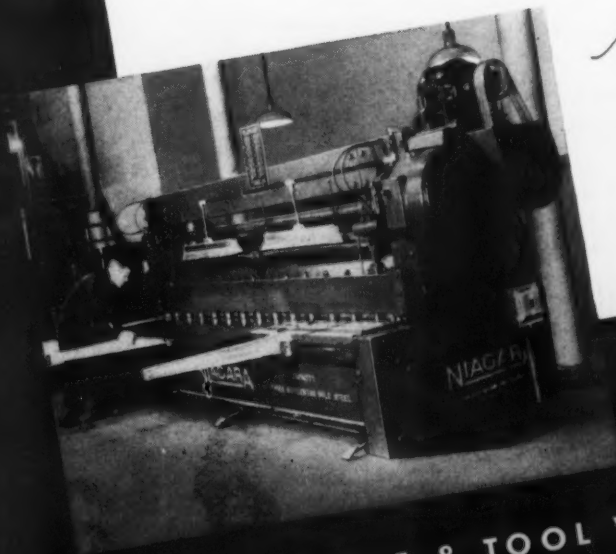
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NEWSFRONT

NEWS, METHODS AND PRODUCT FORECAST

► Recurring rumors that the National Security Resources Board has decided to abandon phantom orders in the machine tool industry are flatly denied by the Board. While there are no present plans to convert these orders into the real thing, NSRB sources say they will do so if and when military procurement requires it.

► Cold-rolled sheets hit \$300 a ton on the gray market in Chicago late last week—a new high.

► India will probably export about 500,000 tons of manganese ore to the U. S. this year, against last year's 300,000 tons. India's total production this year is expected to reach 700,000 tons, compared with 600,000 tons last year.

► One factor stepping up the pressure for consumer controls is the steep rise in automobile installment credit. It totaled more than \$3.7 billion by the end of June—a postwar peak.

► All-rail shipments of iron ore (because of the short Lake shipping season and capacity operations) are costing U. S. Steel \$1.50 a ton more than boat-rail shipments. Increased cost per ton of ingot made from this ore is approximately \$1.80.

► The Navy has developed a technique capable of measuring frequency variation as low as one part in 10⁹.

► One welding equipment manufacturer reports that its backlog has increased by 6 months since outbreak of the Korean war. As a result the company has stopped making special machines to concentrate on standard types.

► U. S., British, and Canadian Naval officers are now talking over plans to standardize arms, equipment and training.

► Recent drilling in the Quebec-Labrador iron ore field has boosted the conservative estimate of 1 billion tons of reserves to 2 billion. Nearly 400 million tons have already been proven and the surface has hardly been scratched.

► The long-time supremacy of the 4-door sedan is being challenged. Output of 2-door sedans gained 7 pct during the first 6 months of this year while 4-door models dropped 5 pct. At the moment, 2-door sedans account for 46 pct of the total while 4-door models trail with 35 pct.

► Washington has assigned strategic index numbers to all critical alloys. As a result, metallurgists are concentrating on using the lowest (least critical) index number they can and still do the job. Some things that look good are being at least temporarily bypassed in favor of less scarce materials.

► Since some other labor groups have won higher pensions than the Steelworkers did when they signed last fall, look for Phil Murray to go after a healthy wage boost when negotiations start late this year.

► Electrical steel sheets are almost as tight as ordinary cold-rolled material. Radio and television manufacturers now have district offices beating the bushes for whatever transformer grade material they can get. Gray market price is around \$300 a ton.



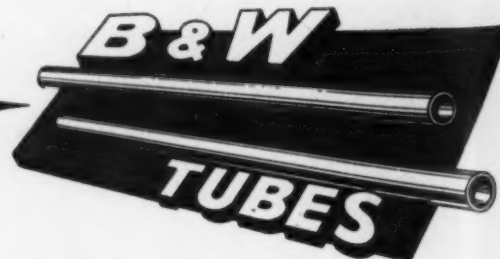
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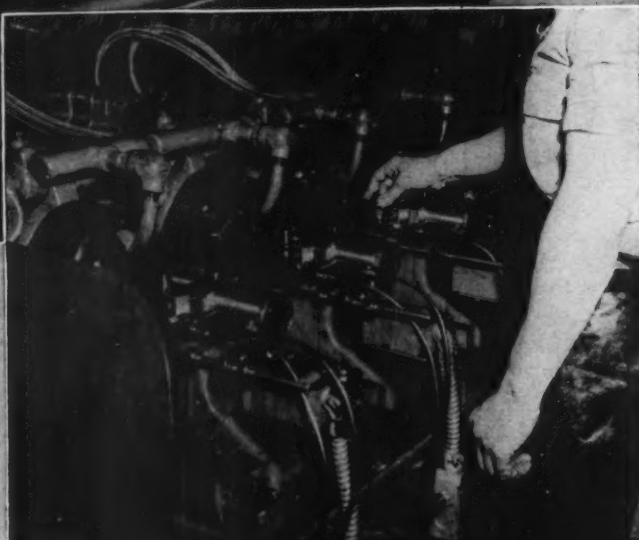
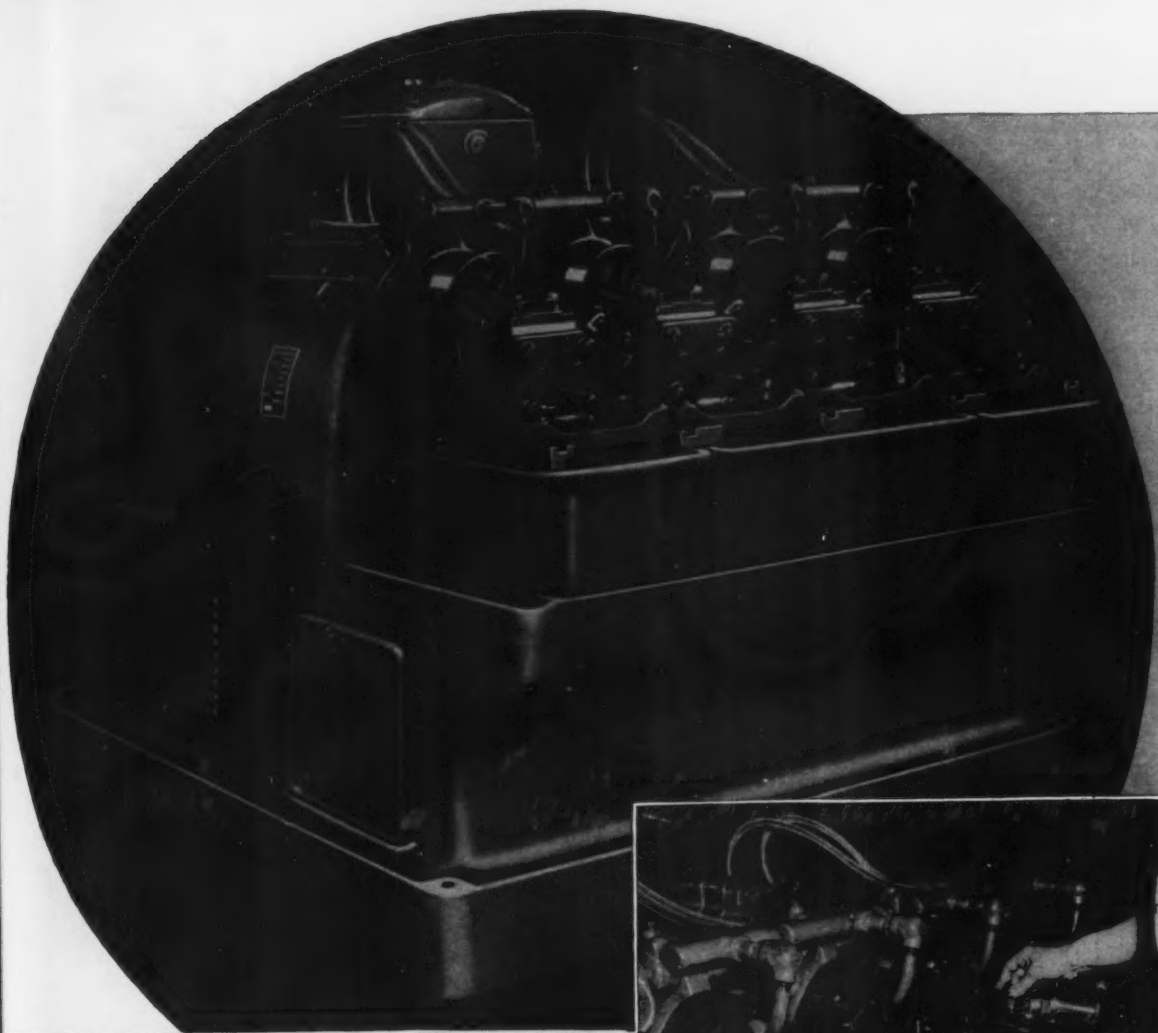
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Fatigue Cracks

By CHARLES T. POST

Standards

Clem Caditz, president of Northern Metal Products Co., claims the steel shortage is practically the only thing we have that the Russians don't mind us having. At least they haven't claimed a Russian invented it yet. Taking a long term look at what lack of steel does, he's afraid of its impact on society.

"What brings on moral disintegration of a whole people?" asks Clem. "It's a gradual loosening of standards to the point where there are no standards. That's what."

"Now look at what the steel shortage has done to standards. When a part was made of .024 material and a load of sheets came in .026, it was summarily rejected. Otherwise the die would break. If you didn't believe it, your production man would take you in the plant, run through a blank, and there was the die in little pieces. Today, on the same job, they use .037 occasionally—and nothing happens."

"And finish—I remember when they couldn't plate a piece unless it had a No. 3 surface. I shaved looking into sheets they sneered at. Today, if the pores don't go completely through the sheet, they plate."

"As steel becomes scarcer and scarcer, standards become looser and looser. If this trend continues, the Smithsonian Institution had better stock up on micrometers, ductility testing machines, hardness testing equipment and other such stuff."

"However, Charlie, there are men—Americans—like myself who will not stand idly by and see our civilization go to smash. At Northern I have instituted standards which are not loose and then even looser. Beyond a certain well-defined point there is no such thing as compromise! Here you see

hope for all humanity, don't you, Charlie?"

"At Northern every shipment of steel is inspected. A corner is clipped off a sheet. That corner is dropped into a bucket of water. If it floats, the load is rejected. If it sinks, we keep it. No exceptions."

Slander

What's wrong with being in the steel business? Bearing in mind that a bookie is always referred to in the newspapers as a "well-known sportsman," we can't get out of our head the case of 107-year old Patrick M. Quinn, who warned reporters, "Don't keep saying I was 'connected with the steel business.' I was a boilermaker."

Puzzlers

Paul W. Zimmer, Republic Steel's geologist, wants to point out that the foot of August 3 40-ft ladder could be, from a mathematical standpoint, 39.4 ft from the base of the wall. He admits, though, that "the poor fellow standing on it would not be very safe." Add to those who solved this one, H. M. Barnes of Chrysler.

John L. Vaupel, Barium Steel Corp., A. L. Graburn, Jr., of P.R.R., C. E. Blass of Talon, Inc., and Howard Fancher of G. E., bucked the double ladder problem successfully.

No answers yet on last week's drill problem and we're putting our math department to work on it.

For a breather, try this old one, suggest Messrs. Zimmer and E. J. Sampson: In a room 30 ft long, 12 ft wide, and 12 ft high are two flies. One is on the middle line of one 12 ft wall, 1 ft down from the top. On the middle line of the opposite wall, 1 ft from the floor is another fly. What is the shortest possible route either fly must walk (not fly) to reach the other?

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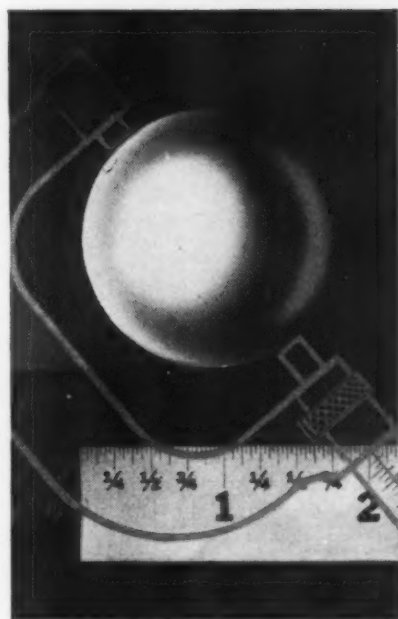
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Dear Editor

Letters from Readers

Newsfront Query

Sir:

In the July 13 issue Newsfront, mention is made of aluminum and titanium entering into the age hardening reactions in certain atmospheres. Will you please send me the references from which this excerpt was taken.

H. L. ANTHONY

Senior Fellow
Mellon Institute of Industrial Research
University of Pittsburgh

The Newsfront item was not taken from any published work. It resulted from our conversations with three or four research engineers, concerning their experience with this phenomenon in various materials. Possibly the best illustration of this reaction in metals takes place with some of the Inconel grades. These metals which depend on aging at elevated temperatures for high mechanical properties must be age-hardened in a controlled atmosphere. In thick sections for short times it is possible to get the reaction completed before the nitrogen starts to work on the aluminum and titanium. However, in thin sections, the nitrogen ties up these two metals before the age hardening precipitation can take place and hence an inert atmosphere is needed.—Ed.

Spreading the Good Word

Sir:

We have read with great interest and acceptance your editorial, "Now Is The Time," in the Aug. 10 issue, and wonder if it would be possible that you could furnish us with 1500 copies for distribution among our own people and others. We will, of course, be glad to pay printing and mailing charges.

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list. The recent editorial concerning propaganda ["Now is the Time," Aug. 10 issue] is such that we would like to reproduce and circulate it. With this explanation, is it possible for you to give us permission to reproduce such editorials with the understanding, of course, that full credit will be given in each instance.

G. A. FARNHAM
Supt., Labor Relations
Northwestern Steel & Wire Co.
Sterling, Ill.

You certainly may.—Ed.

Suppliers: Take Note

Sir:

Could you let us know where we could get in touch with the manufacturers of the various grinding mills and other equipment needed for making iron powder. We are very anxious to get this information for a client in Europe.

R. GRAHAM
Secretary

Binckes Engineering Co.
Kalamazoo, Mich.

For suppliers of this type of equipment who would like to contact Mr. Graham, the address is: Room 124, Pratt Bldg.—Ed.

From Italy

Sir:

We have just examined, on p. 55 of your interesting Sept. 29 issue, the description of a dynamometer recording the cutting strains. Since it is our intention to improve our machine tool equipment, we will be very glad to receive some information on the type of dynamometer mostly used in the U. S. machine tool industry to measure the cutting strains, jointly with some information on prices. We would appreciate also receiving some information on a suitable method for practical purposes to determine the machinability index of steels.

SOCIETA PER L'INDUSTRIA
E L'ELETTRICITA
Terzi, Italy

We know of no dynamometer for measuring cutting strains being regularly offered for sale in this country. The equipment described was built by Sam Tour & Co., 44 Trinity Place, New York, for their own use. An article describing one method of determining machinability index will be published soon in THE IRON AGE.—Ed.

Machine Tool Rental

Sir:

On the Newsfront page, Aug. 17 issue of my favorite trade periodical, you disclose "A machine tool rental plan." Will you please publish full particulars, as we may wish to consider same.

C. A. DREISBACH
President
Dreisbach Engineering Corp.
Yonkers, N. Y.

An article on the plan appears on p. 51 of this issue. Rentco Inc., 3818 Chestnut St., Philadelphia, will probably be glad to furnish you with further information.—Ed.

Steel—Confusion Compounded

Fabricators Refusing to Bid

Ingot Rate Surges Up Again

The Iron Age

SUMMARY

IRON AND STEEL INDUSTRY TRENDS

THIS week industry is sweating out an advanced case of pre-allocation jitters. For more than 2 months they have known allocations were coming and they've tried to buy accordingly. The result has been one of the wildest scrambles for material ever experienced. And it has culminated this week in a state of utter confusion in many markets.

The slow motion probing of the administration for a pre-election set of "painless" controls has compounded the industrial confusion. Industry and individuals have already had more than 2 months to speculate. Who can blame a man or a company for trying to buy what he has been told will be allocated? That he will try to buy scarce materials is as basic as self-preservation.

They Fight for Steel

Most steel producers are still trying to meet the torrent of demand on a hit-or-miss basis. They are filling critical government orders as they come along, taking the tonnage out of the customer's regular allotment whenever possible. When they are unable to do this everyone's allotments are cut back proportionately.

Some companies have a more definite plan. They have arbitrarily divided their October and November tonnage into two categories: (1) To fill government orders, and (2) to fill regular orders. They will book government orders against this tonnage until Sept. 15. If government orders total more than they estimated they will cut back on regular orders during November to fill them. If they underestimated they will increase some November allotments to regular customers.

Whether the freight car builders are getting enough steel seems to depend on what side of the fence you're on. Steel people say yes. Carbuilders say no. With railroads pledged to increase total freight cars by 122,000, carbuilders are all out competing for the orders, of which

60,000 have already been placed. Delivery dates are an important factor in this competition and the car builders want to step up operations to clean up orders on hand and go after new ones.

Fabricators Are Extended

Structural fabricators are finding it more difficult than ever to obtain reinforcing bars and structural shapes. "If and when" bidding is back. That is in bidding they specify delivery if and when they can get the steel. Other fabricators with good mill connections refrain from bidding on jobs because their backlogs are already extended to the end of the year. They are afraid to bid because those letting the jobs will give them to fabricators more likely to be able to get steel—regardless of price.

Some steel converters are nearly sold out for the first half of 1951. Foreign steel is a factor. One converter is bringing in 7000 to 8000 tons of sheet bars per month, the bulk from France, some from Belgium and Germany. The company, which sent two metallurgists to Europe to advise on quality control, reports the move is paying off.

Scrap Market Still Strong

Electric furnace producers are now booking some defense orders for alloy steel. Nickel is the tightest alloy, and a big hunt is on for nickel-bearing scrap which is almost unobtainable. Stainless backlogs are growing by leaps and bounds.

Despite the fact that some big scrap consumers were staying out of the market this week, prices remained firm, even increased in some centers. THE IRON AGE steel scrap composite price hit another new high for the year. Steelmaking operations this week are scheduled at 97.5 pct of rated capacity, an upsurge of 6.5 pct from last week's revised rate which was affected by the rail strike.

(Nonferrous summary, p. 92)

For outstanding production economy
KRW HYDRAULIC PRESSES
ENGINEERED FOR PLUS-PROFITS



Operational efficiency to chisel in on tough competition! Priced for terrific economy — quality that keeps on multiplying profits long after cost has been amortized.

KRW Presses fabricated of steel for maximum strength, minimum weight and space conservation. No excavations or elaborate foundations required.

Low Price Gets High Priced Features

Two Cylinder Type

Tons capacity 60 85 100. Platen and bolster, maximum usable size, F to B, R to L, 36" x 60". Stroke 6" 11". Bed, fixed. Controls: Manual, Semi-Automatic, Fully Automatic for cycled operation.

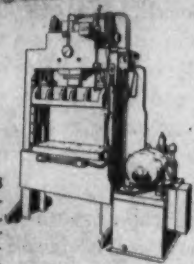
Precision honed cylinders. Adjustable tonnage pressure control. Adjustable limit switch for top return position of ram. Safety by-pass prevents overloading. Large self-contained oil reservoir. Direct connected motor drive to pumps through flexible couplings. Safety controls prevent accidents. Long bronze faced gibs adjustable for wear insure accurate travel of slide. Custom built.

Write or wire for full facts and prices.

K·R·WILSON
215 MAIN ST. BUFFALO 3, N. Y.

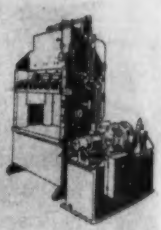
One Cylinder Type

Tons capacity 25 50 75 100 125 150. Platen and bolster, maximum usable size 24" F to B, 36" R to L. Stroke 6" 11" 18". Bed adjustment-increments of 6". Controls: Manual, Semi-Automatic, Fully Automatic for cycled operation.



Three Cylinder Type

Tons capacity 75 100 125 150. Platen and bolster maximum usable size, F to B, R to L, 45" x 72". Stroke 6" 11". Bed, fixed. Controls: Manual, Semi-Automatic, Fully Automatic for cycled operation.



WELDCO
MECHANICAL PICKLER

CUTS PICKLING COSTS 35% AT CANADIAN DRAWN STEEL COMPANY

● Shown here in the "down" position is a Weldco Mechanical Pickler in the plant of the Canadian Drawn Steel Co., Ltd., Hamilton, Ontario. This 5-ton Bar Pickler pickles 15 to 20 tons of rounds, hexagons, squares, and flats per hour, in lengths up to 35 feet. Easy to operate and control, it saves 25% pickling time, eliminates the need of an overhead crane for agitation, and increases tonnage with reduced manpower.

Weldco Mechanical Picklers are also available for pickling coils, tubing, and sheets . . . can be built to any capacity, to fit any type of plant. Why not find out how Weldco can save manpower, maintenance, and money for you? Write today for further information and descriptive literature.

THE YOUNGSTOWN WELDING & ENGINEERING CO.
3100 W. OAKWOOD AVE. YOUNGSTOWN 9, OHIO

MACHINE TOOL

High Spots

Sales
Inquiries
and Production



By W. A. LLOYD

Downtrend Reversed — Pessimism in the machine tool industry this week was about as rare as unanimity in the U. N.

The fractional downtrend of the past 3 weeks has reversed and potential demand, a combination of requirements for the Military Aid Program (MAP), the armed forces, and domestic buyers appears to be tremendous. The question is, how and when is it going to fall?

Defense requirements for steel and other strategic materials of war are expected to materialize sometime in the fourth quarter. Steel producers are now getting inquiries for aircraft engine and bearing steels. Should this be the case with machine tools, the industry is now in an interim period something akin to the lull before the storm.

Manpower Headaches — Chief problem at the moment, but one which seems to be lending itself to solution, is manpower. Employment in the industry was at low ebb in 1949, and many of the men lost have found employment elsewhere and are not available.

Also, wage differentials in some areas have lost men for machine tool companies. Bulk of the companies are now actively hiring and many are considering shift work for the first time in the past 3 years. Shipments are expected to increase throughout the fall months.

Booking far Ahead—In Detroit, there is considerable speculation as to what may happen to machine tool builders if the country is forced into an all-out war effort. At the moment, machinery and tool and die shops are jammed. Builders of special equipment report bookings as far ahead as January, 1952.

According to the trade, cancellations of these orders would leave a void of several months in the shops while engineering departments would be clogged to capacity.

Meanwhile, auto tooling orders are piling up as more motor car producers go forward with new engine plans. Several auto firms and some tool and die shops are proceeding with plant modernization programs. The fact that prices have been jumping in recent weeks seems to be no buying deterrent. One firm reports three upward revisions in the price of electrical equipment since Jan. 1.

A Menacing Shadow—A shadow in the present picture that may be seriously enlarged is the growing materials shortage. A large Detroit coke supplier has had a strike for several months and local foundries report a tight coke situation. While plates for machine tools over 1-in. are not yet a serious problem, light plates are very tight

and sheets are reported relatively unobtainable.

Only one sizable defense order has been uncovered thus far.

Postwar Pinnacle—In Cleveland, National Machine Tool Builders' Association reported the preliminary index of July orders rose to 253.3, a new postwar peak and the highest monthly total since May, 1943, compared with an index of 48 in July, 1949, low point of the postwar decline in machine tools order volume.

Foreign orders, which are included in the total, dropped one point to an index of 22, from index of 23 in June. Foreign orders in July, 1949, were at an index of 14, according to NMTBA.

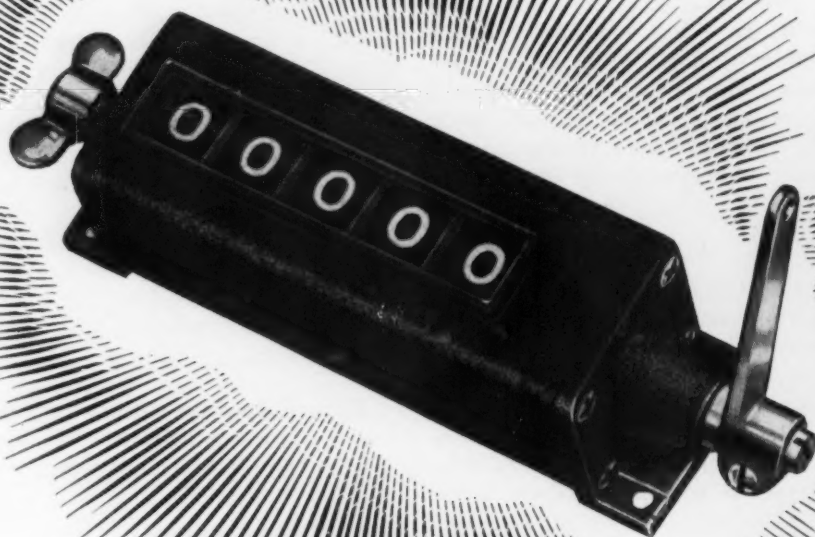
Preliminary index of July shipments is 68, compared with an index of 91.9 in June, which reflects the plant vacation period. Ratio of unfilled orders to shipments rose sharply in July to 7.6 to 1, compared to 5.0 to 1 in June, based on the average shipments for the past three months.

Buys Enterprise Co.—In Pittsburgh, it was announced that the William K. Stamets Co., a machine tool distributor, has purchased the Enterprise Co., Columbiana, Ohio, manufacturer of machinery since 1878. The Stamets Co. also designs and builds special machinery, particularly pipe mill machine equipment such as pipe threading machines, coupling, boring and tapping machines, and pipe handling tables. The Enterprise Co. has been acquired for use as a manufacturing facility for such equipment.

Ready Midwest Plants—In Chicago, the Air Force Procurement Field Office has processed a plan, approved by the Munitions Board, to ready some 103 Midwest industrial plants for immediate wartime production in case of emergency.

A facility file maintained by the Chicago A. F. Procurement office, lists 1260 industries in the 14-state midwestern area to be contacted for possible inclusion in a similar, although less direct plan. In 404 of these, it has already been determined that the Air Force will be given cognizance, in 26 more manufacturing facilities.

You'll "STRIKE IT RICH", too



**... if you can unearth a New
Sales-Building "COUNT-Ability"
in your product!**

It adds up as simply as 1-2-3, like this:

1: Take a new, objective look at your product ... with a sharp "mathematical eye" ... to see whether it could do more for your customers *if it could count*.

2: If you see the glimmer of a hidden Count-ability, call in a Veeder-Root engineer.

3: If he agrees that you've "got something" ... and develops it into a new sales-promotion feature, then ...

TO SUM UP, you build a Veeder-Root Counter into your product as an integral part ... and proceed to bring in a "gusher" of new orders. Now, let's see if we can strike oil for you!

MEDIUM SIZE COUNTER (shown) counts strokes and turns, is built into scores of products from oil-well depth measures to tabulating machines and turnstiles. One of hundreds of V-R Counters, basic types of which are shown in FREE 8-PAGE BOOK. SEND FOR YOUR COPY TODAY.



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What are you welding today, Joe?

**"PIPE LINES...and better
than ever with G-E W-22
and W-52 ELECTRODES!"**



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General Electric
Company

Like Joe and his friends, you, too, will find that G-E Types W-22 and W-52 electrodes have been recently improved for all positions, especially for down-vertical welding on pipe. Also recommended for structural frames, pressure vessels, and shipbuilding.

W-22 is an AWS E6010 electrode, reverse polarity d-c, all positions. It produces welds of excellent appearance, high tensile strength, ductility, and high impact resistance. W-52 is an AWS E7010 electrode, reverse polarity d-c, all positions. Recommended where a minimum of 70,000 psi is required; principally for welding low-alloy steels.

Regardless of what you are welding, the more than 70 types of G-E arc-welding electrodes **assure you of just the right rod for your job.** Your G-E Welding Distributor maintains a complete stock of G-E electrodes to meet your specific needs. Ask him for a copy of the handy pocket-sized G-E Electrode catalog, GEC-482. Or write: Apparatus Department, General Electric Co., Schenectady 5, N. Y.

**ARC WELDERS • ELECTRODES
ACCESSORIES • RENEWAL PARTS**

GENERAL  **ELECTRIC**

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PUBLICATIONS

Contour Grinding

The Visual-Grind combines three important techniques in contour grinding, as explained in a new 6-p. bulletin. Image grinding, profile grinding, and templet (combination) grinding are combined to introduce new possibilities and adaptability in the contour grinding of tungsten carbide to close tolerances. Other features of the equipment are described and the basic techniques of the method are diagrammed. *Cleveland Grinding Machine Co.*

For free copy insert No. 1 on postcard.

Speed Reducer

The new Falk all-steel speed reducer, built to meet modern operating requirements, is presented in a new 16-p. bulletin. The proper method of selecting a concentric shaft speed reducer is explained; AGMA service factors, horsepower ratings, torque capacity and other tables are presented. *Falk Corp.*

For free copy insert No. 2 on postcard.

Industrial Adhesives

B. F. Goodrich adhesives, in bonds ranging from temporary to 4000 psi, are described in a new 8-p. bulletin. Specifications, method of using, and recommended uses for various types of air-drying and vulcanizing cements are presented. *B. F. Goodrich Co.*

For free copy insert No. 3 on postcard.

Wound-Rotor Motors

Complete construction, assembly and application data for the Star series wound-rotor induction motors, available in NEMA frames 203 to 505, are included in a new bulletin. *Star-Kimble Motor Div., Miehle Printing Press & Mfg. Co.*

For free copy insert No. 4 on postcard.

New publications that describe money saving equipment and services are available free and without obligation. Copies can be obtained by filling in the attached card and mailing it.

Special Shapes

Ironton special shape refractories are discussed in a new data sheet illustrating production operations and some of the special shapes. These shapes, made of Kentucky flint and semi-flint clays, are engineered to individual furnace conditions. A new method of drying the shapes is also described. *Ironton Fire Brick Co.*

For free copy insert No. 5 on postcard.

Diamond Abrasives

A new Bureau of Standards specification booklet defines vital properties of diamond abrasive powders such as purity, particle size and size range limits, and limits the content of fines below the indicated range. Copies of this new Dept. of Commerce publication entitled "Grading of Diamond Powder" are available from Elgin, whose Dymo diamond compound will be available in accordance with both old and new standards until transition is complete. *Elgin National Watch Co.*

For free copy insert No. 6 on postcard.

Drill Heads

Illustrations and full descriptions of drill heads containing various numbers of spindles for reaming, facing, tapping, threading and other operations are presented in

a new 28-p. catalog. All heads are adjustable and are designed to permit drilling on very close centers, as indicated by means of cross-section engineering drawings and installation photos. *U. S. Drill Head Co.*

For free copy insert No. 7 on postcard.

Shop Microscope

The Gaertner toolmakers' microscope, for precision shop measurements, is described in a new 8-p. folder. General design and construction data are presented to illustrate the instrument's broad range of application in shop inspection or layout procedures. A number of available accessories are also shown. *Gaertner Scientific Corp.*

For free copy insert No. 8 on postcard.

Mixing, Agitating

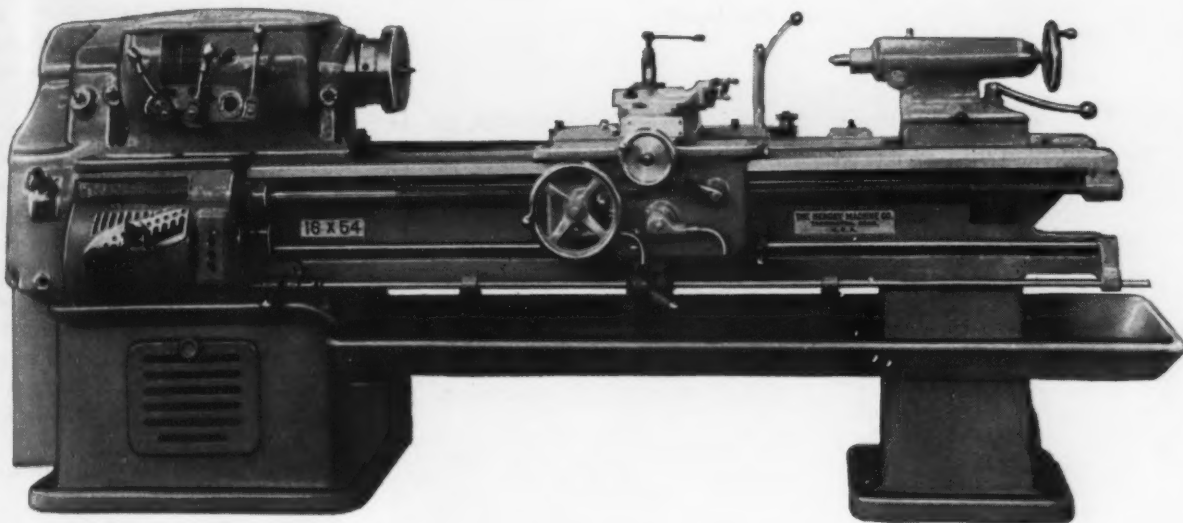
Custom built mixing and agitating equipment of all types and countless variations in design to suit economical and practical solutions to variable liquid, semi-plastic and dry powder mixing problems are featured in a new bulletin. *Process Industries Engineers, Inc.*

For free copy insert No. 9 on postcard.

Metal Reclaimer

A complete unit wet or dry process grinder is the metal reclaiming mill described in a new 6-p. folder. The equipment, for making

Turn to Page 84



NICKEL ALLOYED CAST IRONS can be specified to assure a dense, uniform structure of high hardness for wear-resistance, and with well dispersed graphitic areas for good anti-frictional properties as well as ready machinability.

How NICKEL CAST IRONS help machine tool users

Hold down Production Costs

SCORING and WEAR in machine tools cause dimensional changes that make accuracy and output fall sharply. Then, unit production costs rise...

Solve this problem by using nickel cast iron for induction-hardened and flame-hardened parts of your products or equipment.

Records show that nickel cast iron parts make it possible for tools to retain their initial accuracy much longer than would similar castings of plain iron. The Henley 16" x 54" Toolroom Lathe, shown above, is but one of scores of examples.

The Henley Machine Company, Torrington, Connecticut, found the induction method best for lathe bed ways that must retain accuracy. Their engineers specify a 1 1/4 per cent nickel alloy cast iron, induction-hardened to provide a minimum reading of 70 on the shore scleroscope (about 500 BHN). Distortion never exceeds 0.012" in a 6-foot length of this nickel cast iron, and the depth of the hardened skin runs as high as 3/32".

Nickel in cast iron lowers the critical transformation range, thus promoting greater depth of hardness than in plain iron, and minimizing distortion. Moreover, there is gradual blending of the hardened layer into the softer pearlitic interior, whereas in unalloyed iron the transition zone is apt to be completely graphitized and hence extremely weak.

Consult us on the use of nickel alloyed irons to meet your casting requirements. Send us details of your problems today.



Over the years, International Nickel has accumulated a fund of useful information on the properties, treatment, fabrication and performance of engineering alloy steels, stainless steels, cast irons, brasses, bronzes, nickel silver, cupro-nickel and other alloys containing Nickel. This information is yours for the asking. Write for "List A" of available publications.

THE INTERNATIONAL NICKEL COMPANY, INC. 67 WALL STREET
NEW YORK 5, N. Y.

August 31, 1950

NEW

PRODUCTION IDEAS

Continued

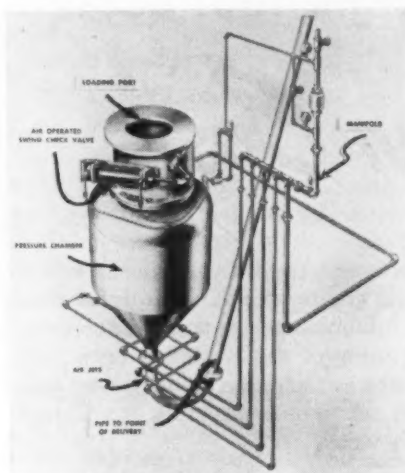
straight body type for curved marking. The improved retaining feature, that allows the characters to stamp on a specified curved radius, eliminates the need for retaining pins and slotted type. Fixtures are made to order for marking a specific part or can be manufactured adjustable for use on various shapes and sizes. When the degree of curvature changes, a different type holder must be used. *M. E. Cunningham Co.*

For more data insert No. 23 on postcard, p. 33.

Pneumatic Conveyor

Turbo-Drive transports sand and flowable material to point of use.

A new pipe line conveyor is designed for batch moving of sand or other granular, crushed or pulverized materials from receiving to storage, and from storage to



point of use. The Turbo-Drive operates from air pressure. It consists of an entrance or swing check valve through which the material is loaded into the pressure chamber. Air pressure is controlled by a manifold incorporating several valves and a pressure regulator. Also included are the pipe, bends, switches and fittings necessary for delivering the material to point of use. Each batch is delivered complete, thus eliminating contamination between successive batches when moving different materials. A ton or more of material can be

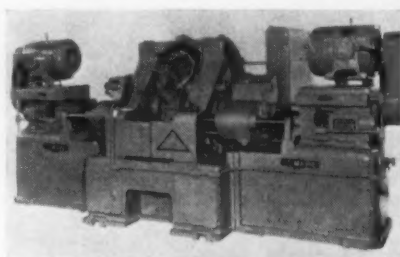
moved in a few minutes, it is stated. Conveyor capacities are 7, 15, and 30 cu ft. *Crane Co.*

For more data insert No. 24 on postcard, p. 33.

Drilling Machine

Drills, counterbores, and reams steering gear idler and arm bracket.

The machine is a two-way horizontal six-spindle drilling machine with four-position trunnion. A



fabricated steel center base supports the fixture trunnion and houses the coolant tank. Two cast iron standard end bases support No. 5000 twin ram units that drive and feed three-spindle heads mounted on guide bars. The indexing mechanism is interlocked with the hydraulic units in such a way that units will not operate if trunnion is not properly located with plugging bar in place, or if trunnion is indexed in the wrong direction. *LeMaire Tool & Mfg. Co.*

For more data insert No. 25 on postcard, p. 33.

Metals Identifier

Sorts steels, nonferrous alloys; metal materials or finished parts.

Electrically conductive material may be sorted according to its chemical or constitutional nature



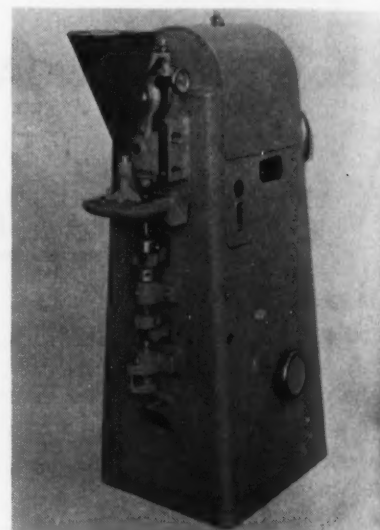
with the new non-destructive, electrical test equipment, known as the Metalsorter. The instrument employs an electro-mechanical sorting head into which a test rod of known composition is fastened. The sorting head and test rod make electrical contact with the material under test and the indication of the presence or absence of any tribo-electric current is shown by a large meter. Signal lamps on the sorting head and the control unit may also be used to show the electrical effect produced by a test. The test is said to average 15 to 20 determinations per min on small parts. *Doschek & Walker, Inc.*

For more data insert No. 26 on postcard, p. 33.

Tabletting Press

Dual pressure molds compressed forms to 1/4 in. diam at 50 per min.

This F-4 dual pressure press is less than 5 ft high, requires 20x33 in. floor space, applies 4 tons pressure both from above and below



and produces at rates up to 50 per min. Speed is adjustable by simple handwheel control while the press is running. Adjustment for change in part thickness can be made by controls at front of the machine. The press is useful for pressing ceramic parts and for powder metal pressing. *F. J. Stokes Machine Co.*

For more data insert No. 27 on postcard, p. 33.

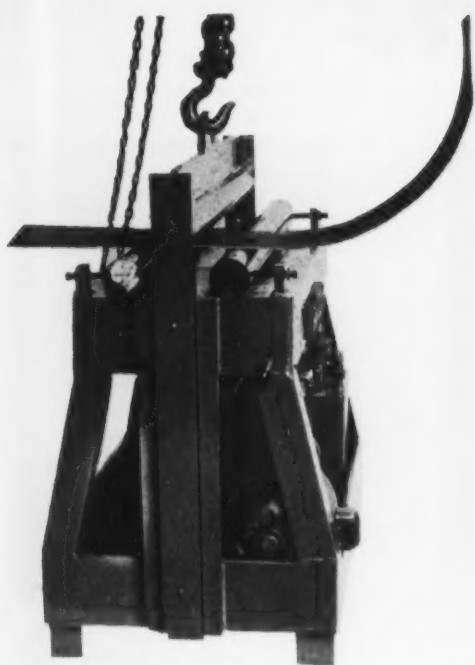
Bench Center

Convenient for inspection work; 19 1/2 in. maximum between centers.

With a universal indicator support bracket that is furnished

Turn to Page 85

PAXSON GIVES YOU THE EDGE



Another new Paxson development. A hydraulically operated *portable coil-end straightener*. It will simplify the job of straightening coil ends before starting them through *slitters*—a task now done manually or with *stationary* equipment.

PAXSON MACHINE COMPANY, ENGINEERS AND BUILDERS OF COLD-ROLLED STRIP-MILL EQUIPMENT, SPECIALIZING IN SLITTING LINES

DO YOU FLY? 2800 ft. E. W. runway and clubhouse, private field 2 miles west of Salem maintained for your convenience. Wire or phone arrival time. We will meet your plane.

REMEMBER, ALL PAXSON LINES ARE CUSTOM BUILT

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SALEM • OHIO

Iron Age

Introduces



CYRUS R. OSBORN, vice-president, General Motors Corp., former general manager, Electro-Motive Div., was appointed executive in charge of the engine group.



B. A. DOLLENS, elected a vice-president, General Motors Corp., to succeed Mr. Osborn as general manager, Electro-Motive Div.



ALAN J. BRONOLD, appointed sales manager of Sterling Electric Motors, Inc., Los Angeles.

K. N. Bush has been named production manager of the Large Apparatus Div. GENERAL ELECTRIC CO., Schenectady. He succeeds **T. F. Garahan**, who was recently appointed vice-chairman of the mobilization planning committee.

E. H. Lamberger was promoted to the position of assistant to the manager of the patent dept. WESTINGHOUSE ELECTRIC CORP., Pittsburgh.

William B. Snyder has been appointed assistant manager of the steel mill div., GENERAL ELECTRIC CO., Schenectady.

E. A. Henry was appointed wire die specialist in charge of FIRTH STERLING STEEL & CARBIDE CORP.'s new die finishing shop in Chicago. Assisting Mr. Henry will be **Andrew Marhefka**. **Joseph McKay** has been named director of industrial relations for the company.

R. Mason Scheetz was named manager of the Philadelphia Div., SOLAR STEEL CORP.

W. A. Burns, Jr., was made vice-president and sales manager of the TRAILMOBILE CO., Cincinnati.

LEAR, INC., Grand Rapids, appoints **C. E. Willis**, assistant sales manager and **A. N. Lawrence** eastern office manager.

Jack D. Colyer has been appointed sales manager **PHILIP M. STINSON**, Detroit.

Leonard E. Bees has been named vice-president in charge of manufacturing, THE TRUMBULL ELECTRIC MFG. CO., Plainville, Conn. He has been manager of manufacturing since August, 1949.

L. M. Sandwick has been elected vice president and general sales manager of SCOTT RADIO LABORATORIES INC., Chicago.

Hyatt Bearings Div., GENERAL MOTORS CORP., Harrison, N. J., has announced the following changes in its executive group: **Alton H. Lundius**, works manager in charge of all manufacturing and service operations at the Harrison and Clark Township plants; **William H. Chapman**, director of engineering; **Robert R. Guempel**, plant manager at Clark Township; **Martin A. Moore**, administrative assistant to the general manager; and **David B. Caminez**, divisional comptroller.

Scintilla-Magneto Div., BENDIX AVIATION CORP., Sidney, N. Y., announces a realignment of its mid-west sales area and appointment of **W. G. Roloson** to head a newly-created 13-state territory. He will supervise the North mid-west territory and **M. E. Douglass** the south mid-west.

J. David Wright has been appointed assistant manager of GENERAL ELECTRIC COMPANY'S industry divisions at Schenectady, N. Y. He will be replaced in his former position as manager of the company's industrial engineering divisions by **Frederic M. Roberts**.

W. H. Schneider has been elected vice-president - comptroller of MACK TRUCKS, INC. Mr. Schneider succeeds **J. E. Savacool**, who is retiring. Mr. Schneider was also elected a member of the board of directors.

J. B. Proctor was handed the post of general manager for DELUXE METAL FURNITURE CO., Warren, Pa. He was formerly sales manager for the organization.

Paul H. Richey has been appointed personnel director of DETREX CORP., Detroit.

Larry Offenbecker, former sales promotion executive with the SCHOOL MFG. CO. and HOTPOINT, INC., was named director of advertising for SCOTT RADIO LABORATORIES, Chicago.

Frank White and August J. Breitenstein was added to the Bituminous Coal Research, Inc., mining development committee. Mr. White is vice-president in charge of operations of PEABODY COAL CO., Chicago, and Mr. Breitenstein is assistant to the president of H. C. FRICK CO. and the UNITED STATES COAL & COKE CO., Pittsburgh.

Roger A. Yoder, secretary and treasurer of the DETROIT STEEL CORP., has been elected president of the Detroit Control of the Controllers Institute. Luther E. Lawrence, assistant treasurer and comptroller of McLOUTH STEEL CORP., and Harry J. Longway, secretary-treasurer-controller of the MICHIGAN STEEL PRODUCTS CO., both of Detroit, were chosen directors.

William E. Reiber, assistant general electrical superintendent GREAT LAKES STEEL CORP., has been named chairman of the Detroit Chapter, Association of Iron & Steel Engineers. He succeeds Warren E. Hart, electrical superintendent, FORD MOTOR CO.

Appointments announced by LOWE BROTHERS CO., Dayton, in its new industrial division include: Edward F. Teyber, manager; J. B. Woods, sales manager; and Robert Drerup, assistant manager. Frank Musch is industrial representative in the Chicago area.

NATIONAL ELECTRIC PRODUCTS CORP., Pittsburgh, has created within its sales organization a western region and has named: R. Graham Holabird, regional manager; N. L. Bost, manager of the northwest district; R. E. Stone, manager of the southwest district; and Wm. D. Ross, San Francisco district manager.

John J. O'Farrell has been named management engineer in charge of the methods engineering inventory control and I.B.M. depts. HYSTER CO., Portland 8, Ore. Working under Mr. O'Farrell are Sherman D. Bucher, supervisor of the inventory control dept. and Leland R. Viar, supervisor of the methods engineering dept.

D. C. Wedlick was appointed district sales engineer of the MICHIGAN TOOL CO., Detroit.

Iron Age *Salutes*

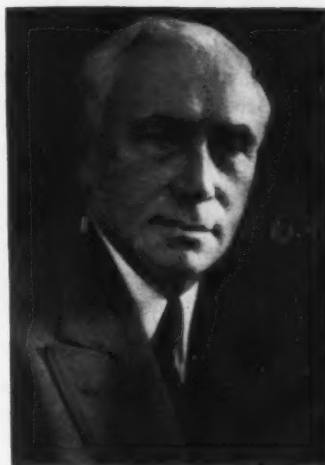
H. H. DOEHLER

OPEN letters written by H. H. Doehler, 78-year-old chairman of the board of Doehler-Jarvis Corp., and the UAW-CIO appeared face to face in newspapers of three towns recently. Readers were agog. They believed that the lion and tiger—by necessity tenants of the same den—had formed a Mutual Admiration Society.

Mr. Doehler complimented the union for excellent cooperation in negotiating a 5-year labor pact and announced expansion plans for its Toledo plant. The union replied by expressing pride in its relations with the firm. In the background of those eulogistic letters were 50 years of labor-management peace, fostered by the gentle hand of Mr. Doehler.

Recognized as the man who has done the most to guide the die casting field from the infant phase to big business, Mr. Doehler has a calm and humane philosophy on labor. "I have great faith in the worker," he said, "but none whatsoever in drones. In these times labor is being subjected to powerful influences and occasionally follows a false prophet. It is up to management to keep workers informed and to influence them by reason, deeds, and by education in business matters so that they will be convinced that labor and management must work together in harmony."

In 1891 a German immigrant walked off the gangplank with \$3.25 in his pocket. The new world was a challenge and now 59 years later Mr. Doehler is the father of one of the largest die casting businesses in the world. He built a titan on the foundation of a one



man shop because he had confidence in the then new-fangled technique of die casting. The first practical die casting machine built for mass production by Mr. Doehler is now a prized industrial exhibit in the Smithsonian Institute of Washington.

Mr. Doehler, when questioned on his accomplishments, shrugs his shoulders and says that he was inspired by the Mergenthaler Linotype Machine die casting process. He broadened its industrial applications by applying its fundamental principles to produce other metal parts. "Now the only limit to the field is the ingenuity of its engineers," he states.

The seven plants of Doehler-Jarvis, employing 8500, will serve as a pillar in the country's defense effort. The firm turned on the steam during World War II and at one point was shipping one million 20 mm fuse parts to the Navy per day—this in addition to other numerous war products.

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August 31, 1950



FRANK T. WRUK, elected to the office of vice-president in charge of sales and service, Peerless Machine Co., Racine, Wis.

Philip Johnston was named sales manager, succeeding **T. L. Richards**, for the Riehle Testing Machines Div. of **AMERICAN MACHINE & METALS**, East Moline, Ill.

John Taylor has been named vice-president in charge of the management and industrial engineering division of **LESTER B. KNIGHT & ASSOCIATES, INC.**

Carl E. Allen will succeed **R. A. Wyant** when the latter retires on Sept. 15 as president of **CAMPBELL, WYANT & CANNON FOUNDRY CO.**, Muskegon, Mich. Mr. Wyant will continue as a director. Mr. Allen has been a vice-president of National City Bank, N. Y.

Nils Walter Swenson becomes assistant manager of branch sales for the mechanical goods division, **U. S. RUBBER CO.**



PHILIP BARNES, named general sales manager, Weston Electrical Instrument Corp., Newark, N. J.



E. D. CASSEDAY, named Houston district sales manager, Bridgeport Brass Co.

THE GLIDDEN CO., Cleveland, has announced the following appointments: **G. M. Halsey**, director of manufacturing, chemical and pigment div.; **James W. Pollard, Jr.**, manager of the Baltimore plant; **A. J. Benjamin**, assistant manager; and **Irving J. Foote**, plant engineer.

Ray O. Hill has been named comptroller, **CANNON ELECTRIC DEVELOPMENT CO.**, Los Angeles. **John K. Trotter** assumes the position of production manager formerly held by **Richard L. Rowen**, recently elected vice-president.

HUNTER SPRING CO., Lansdale, Pa., has announced the reorganization of its sales force under the direction of **Orrin G. Meyers**, sales manager. New field representatives are **James P. Glidden**, **Donald A. Beardsworth** and **Joseph E. Curry**.



EDWARD P. BUCHANAN was appointed manager pig iron division, Pittsburgh Coke & Chemical Co.



E. A. WALKER, elected to the board of directors of Firth Sterling Steel & Carbide Corp., McKeesport, Pa.

D. W. Cameron has been named manager of operations of **MONTRÉAL LOCOMOTIVE WORKS, LTD.** Mr. Cameron has been general superintendent of the Schenectady plant of **AMERICAN LOCOMOTIVE CO.**, U. S. affiliate of Montreal Locomotive Works.

Dr. E. W. Volkmann and **Dr. F. L. Jones** have been appointed assistant managers of the research dept., **KOPPERS CO., INC.**, Pittsburgh.

Walter B. Baisch was appointed to the office of vice-president in charge of operations, **MICHIGAN SEAMLESS TUBE CO.**, South Lyon, Mich.

R. C. Freytag has been elected a vice-president of **SCOTT RADIO LABORATORIES, INC.**, Chicago; **Hubert S. Conover** was elected a director.

Dr. Robert H. Steiner was appointed research coordinator of **ATLAS MINERAL PRODUCTS CO.**, Mertztown, Pa.

OBITUARIES

Richard C. Kinley, retired vice-president and works manager of National Acme Co., passed away recently.

Allan W. Ainsworth, partner in the firm of **Horace T. Potts Co.**, Philadelphia, passed away recently. He was 45.

Forrest A. Marsh, 45, assistant to the vice-president in charge of sales, National Tube Co., died suddenly Aug. 17.

Demand May Dovetail—It is no secret that the automobile industry has no hopes of continuing indefinitely production at the present rate of 9 million assemblies a year. Some curtailment in output was certain even without recent defense developments. Based on present production schedules the industry will turn out the equivalent of its 1949 output before the end of October.

In the opinion of many suppliers to the industry, a cut of as much as 25 pct in automotive demand next year—even without interference by the defense program—would not be surprising.

Detroit Uneasy—Labor unrest is conspicuous in Detroit at the moment. The threat of a wage freeze is a big factor. Other contributing factors are: (1) Worker restlessness—which is reflected in sympathetic walkouts, (2) union politics, (3) honest differences of opinion over contracts. A tight situation was eased by last week's quick negotiation of the Chrysler labor pact.

Charge Job Losses—On many occasions the actual facts in a labor dispute are obscured while both sides spread charges and counter-charges over the front pages of the newspapers. The threat of a strike over Ford's decentralization plans is an example. Reckless charges have been made by union spokesmen—and repeated by some so-called responsible industrialists—that 30,000 people may lose their jobs at the Rouge as a result of Ford's decentralization moves.

None Laid Off—The important facts seem to be these: (1) Ford employment is presently at the highest level since the war; (2) the company has opened new plants at Mound Rd., Canton and Buffalo and is transferring workers from Hamilton to Monroe. Yet Rouge employment is up. Despite these moves no workers have been laid off.

Even if economic developments should result in curtailed auto pro-

duction, Ford officials say that the decline in employment could be met simply by failing to hire replacements for workers who leave their jobs. Carl Stellato, president of Ford Local 600 and the biggest UAW-CIO union, has frequently charged that a "runaway shop problem exists at the Rouge." The truth is that Ford, many Ford workers, and the International UAW-CIO find the manpower concentration at the Rouge undesirable.

New Engine Programs—Feverish activity continues on plans for new high compression engines. Chrysler-Jefferson is moving rapidly along with its program. DeSoto and Dodge are gathering steam. There were indications this week that things are stirring at Plymouth as well. The Buick retooling program for a new engine is rapidly shifting into high gear. New Buick orders are reported and there is some tooling activity, presumably plant modernization, at

Packard and Hudson. For the moment, Pontiac and Chevrolet appear to be standing pat with their present powerplants.

Hold the Price Line—Despite the 5¢ boost in wages resulting from increased cost-of-living, General Motors intends to hold the auto price line. When it is remembered that raw materials prices, new equipment and, particularly, rubber have all advanced sharply in recent months, this GM decision should be welcomed, particularly by prospective new car buyers.

New Packard Prices—Packard has announced the following prices for its new "200" series: 2-door sedan \$2305; 4-door sedan \$2355 and 4-door sedan deluxe \$2495. There is also a three passenger business coupe at \$2195. Price of the 1951 Packard "300" is provisionally set at \$2795 and the Patrician "400" at \$3385. All prices are Detroit delivered prices. State and local taxes are extra.

THE BULL OF THE WOODS

By J. R. Williams



TWO-JOB TOOLING ON ONE MULTIPRESS

Index table with "skip-station" feature permits double-duty tooling for faster assembly work.

Two sets of holding fixtures—to handle two different subassemblies—all in one press. Increases production with maximum efficiency from operator and press. No down time for tooling changes!

And here's the story! Two assemblies, similar in design but different in size are staked by quick-change punches which thread into the press ram. The Denison Multipress Index Table is tooled with holding fixtures at each of the twelve stations. Every other station has fixtures which hold the small assembly. The alternate stations are tooled for the larger assembly.



Utilizing the "skip-station" feature (available for all models of the Denison Index Table) short runs can be made for either part by merely positioning the skip-station control cams. The table then automatically "hurdles" every other station—providing a six-station indexing unit. To convert for assembling the larger part, these cams are quickly relocated at alternate stations. Thus, production can be switched from one part to the other in a matter of minutes.

Denison Multipress Indexing Tables (with either 6 or 12 stations) and the Skip-Station Accessory are only two of



the many standard, job-speeding attachments Multipress offers—in addition to the fast, quiet, oil-smooth accuracy and versatility. Built in a complete line of bench-type and floor models, with capacities from one ton up through the 35-ton range, it is available with manual or automatic controls for almost any type of ram action or operating sequence.

If you want to boost output, get a better product, increase safety and cut costs on any production need calling for pressures up through the 35-ton range—be sure to check the advantages of Multipress. Write today.



The DENISON Engineering Company

1158 Dublin Road, Columbus 16, Ohio

WEST COAST PROGRESS REPORT

Digest of Far West Industrial Activity—By R. T. REINHARDT



More Power—Last week Utah Power and Light Co. ordered a 75,000 kw generator from Westinghouse Electric Corp. to be installed as an extension of a 66,000 kw plant now under construction West of Salt Lake City. The new unit is scheduled for completion in 1952 and will cost about \$10,500,000. The steam plant will burn coal, residual oil or gas.

Idaho Power Co. announced plans for a new 90,000 kw installation on the Snake River near Mountain Home, Idaho, which also is scheduled for completion in 1952 and will cost about \$18,500,000.

Aluminum Progress—Articles of incorporation have been filed in Flathead County, Montana, by the Harvey Machine Co., Los Angeles aluminum extrusion producer, as another move toward building an aluminum reduction plant near Hungry Horse Dam.

Capitalization was reported at \$5 million with a request for a 40-year existence and the right to do business throughout the world. Directors were reported as Olaf Sather, William Price and J. J. Connors, all of Helena, Mont.

The company has an option on 700 acres near the dam site and has purchased a potline from the government's abandoned Riverbank, Calif., plant.

Alloy Production Extended—Bethlehem Pacific Coast Steel

Corp. is now producing its low-alloy, high-strength Mayari-R steel at all three of the company's plants in South San Francisco, Los Angeles and Seattle.

One Way To Do It—Rather than try to maintain production schedules on allotments of steel sheets from domestic mills, Frank V. Seidelhuber, Jr., general manager of the Seidelhuber Iron and Bronze Works, Inc., Seattle, has gone to Europe to develop foreign sources.

The company hasn't been able to get enough sheets for capacity production of its water heaters for a number of years and has even gone so far as to prepare plans for a small sheet mill. Mr. Seidelhuber contends, "The present American supply is inadequate to maintain expanded production." He didn't state how many tons he wants.

At Least a Better Price—Fabricators of steel who can use—and get—the coiled hot-rolled sheets produced at Geneva Steel Co.'s Utah plant are happy about the new base price established there 2 weeks ago. Here are representative comparisons of the new mill price plus freight as delivered, cents per pound: Salt Lake City, 3.598 as against 4.71; Portland, Ore., 4.099 and 4.316; Seattle, 4.171 and 4.316; Denver, 4.315 and 4.555; Los Angeles, 4.10 (no price advantage over sheets delivered

from Columbia Steel's Torrance plant); San Francisco, sheets from Torrance here including freight cost 4.39 and sheets from Geneva here now cost 4.10.

Northwest Refractory Use—Metallurgical industries of Oregon and southern Washington consume approximately 25 pct of the fireclay bricks used in the area, according to a report issued by the Raw Materials Survey in Portland.

Made to determine the economic feasibility of establishing a refractory plant in Oregon to utilize local deposits of clay, the survey states that in 1949 Oregon industries used 15,750 tons and Washington 28,605 tons of all types of fire bricks.

Metallurgical industries showed the only consumption of magnesite bricks, carbon and graphite, dead burned magnesia, and dead burned dolomite in the questionnaire survey and accounted for about 75 pct of the total silica brick consumption.

War Business—Pacific Car and Foundry Co., Renton, Wash., has received a "sizable" order to manufacture a self-propelling gun mount for the Army on which it has been doing design work for more than a year. No details on operation or size of the unit or number to be built can be released.

Oakite's New FREE Booklet on Metal Cleaning

WHAT'S THE FASTEST
WAY TO CLEAN METAL?

See page 11

WHAT'S THE MOST
ECONOMICAL WAY?

See page 9

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You'll want to know the answers

Can one cleaning material do all metal-cleaning jobs? *See page 5.*

What kind of cleaner attracts both oil and water? How does this help remove buffing compound residues and pigmented drawing compounds? *See page 8.*

Why clean ferrous and nonferrous metals in separate tanks? *See page 10.*

What are the advantages of reverse current for electrocleaning steel? *See page 15.*

For electrocleaning nonferrous metals, what are relative advantages of cathodic, cathodic-anodic and soak-anodic cleaning? *See page 17.*

Can you electroclean brass without tarnishing? *See page 18.*

How do bright dips make metals brighter? *See page 21.*

Can you clean steel and condition it for painting for less than 20 cents per 1,000 square feet? *See page 26.*

Would you like a cleaner that removes rust and oil at the same time; often eliminating all need for pickling? *See page 28.*

What's the best way to clean parts that are too large to be soaked in tanks or conveyed through washing machines? *See page 30.*

Does your burnishing barrel produce a luster you are proud of? *See page 32.*

What do you do when the overspray neither sinks nor floats in the wash water in your paint spray booth? *See page 35.*

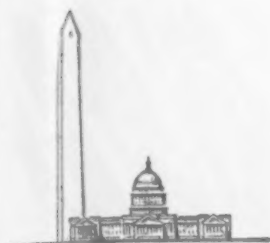
Do you dry steel parts before anti-rust-ing? *See page 37.*

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THE FEDERAL VIEW

THIS WEEK IN WASHINGTON

Slow Start For Point 4—The Administration's "Point 4" program of technical assistance to under-developed countries will get off to a slow start since Congressional appropriations have been limited to \$15 million.

When the new program really gets underway, its possible scope could dwarf the imagination. This is clearly indicated by the more than 1000 communications from and discussions with foreign governments in regard to technical assistance. Some of these are informal requests for specific technicians and others general broad projects for which technical assistance is desired.

Who Wants Aid—Recent tabulations show that 60 of these had come from the Latin-American countries, 478 from South Asia, Near East, and Africa, and 604 from the Far East. In addition, the United Nations and its specialized agencies had on hand 310 inquiries and unfilled requests.

Part of the U. S. appropriation will go to support UN activities in this field. It would appear that by soliciting and discussing these requests the U. S. is committing itself to a program of unprecedented size, regardless of when it may really get going.

State Dept. Bucks Stockpiling—The Point 4 program will have tougher sledding in future years, however, if the State Dept. carries forth its present policy of regarding countries seeking technical aid as "sacred cows." State Dept. officials have already bluntly refused to consider any reciprocity in the program with regard to building up the U. S. strategic stockpile.

Hubert Howard, Munitions Board Chairman, recently told Congress

that the Point 4 program should be tied in with the stockpile objectives, but emphasized that the State Dept. has "not gone along with our views. . . . They have practically rejected the inclusion of any reference to getting materials from the countries in the Point 4 program." He said the State Dept. attitude is that any thought of wanting something in return for technical aid "destroys the atmosphere."

Stockpile Breakdown—Only little more than half, \$387.5 million, of the extra \$600 million for stockpiling will be used for materials purchase. Reactivation of aluminum plants will take \$6 million, while \$198 million will be set aside to take care of possible emergency purchases. The rest will be needed for handling, storage, maintenance and administrative expenses.

Military Aid Changes—Important policy changes in the military aid program now expanded by \$4 billion, involves the spending of funds for increasing arms output in Western Europe outside the U. S. Major reason for the change is that the expanded needs would put too great a drain on U. S. output of raw materials and machinery.

During the first year of the program only about \$18 million was



By EUGENE J. HARDY

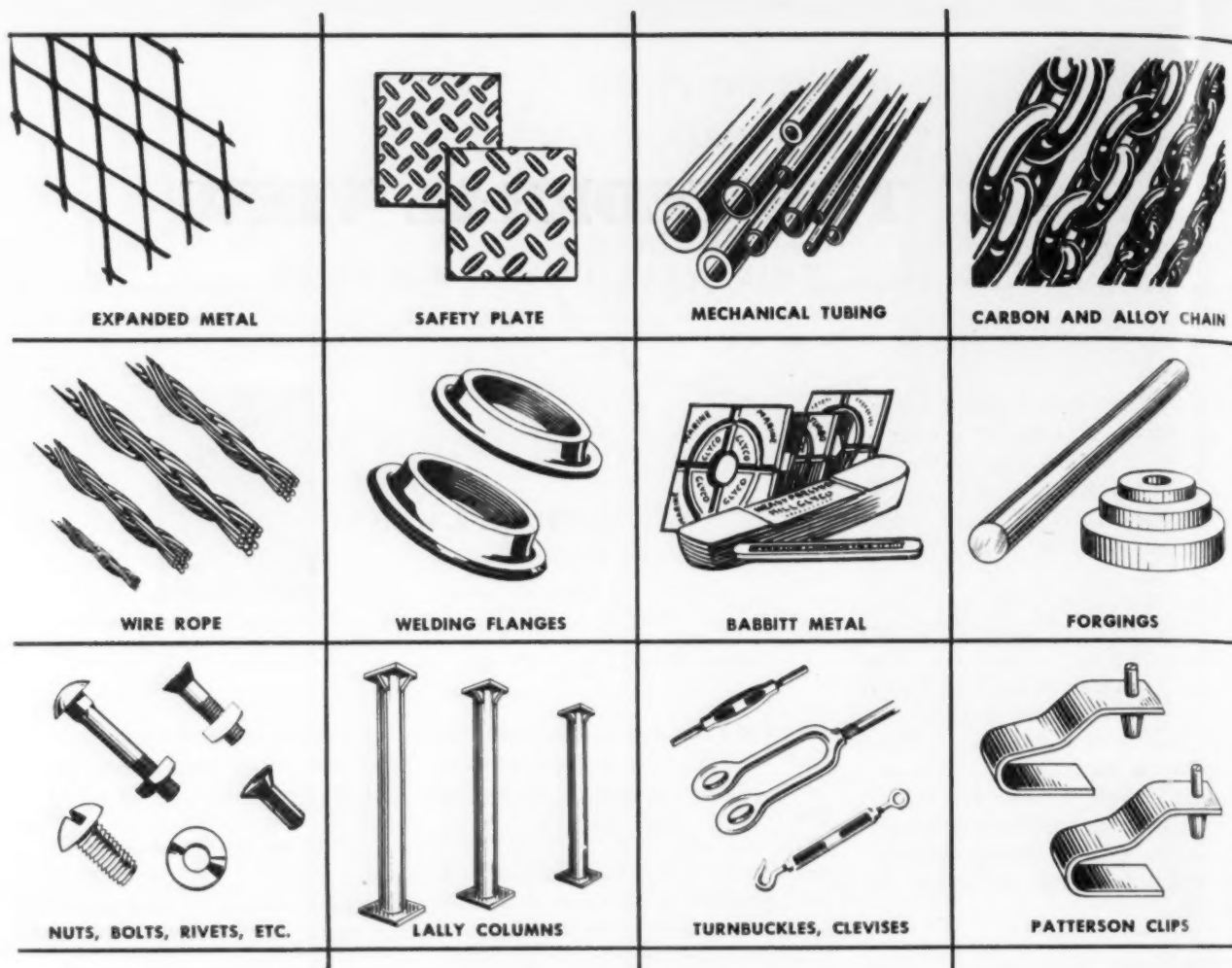
set aside for increasing arms output overseas. The regular budget for the present fiscal year called for only \$75 million for this purpose. Most of these funds were to be spent in the U. S. The \$4 billion increase includes a minimum rough estimate of \$400 million additional for this purpose.

Where Spent—About one-third of the \$475 million is earmarked for the purchase of military equipment and components in Europe for distribution to European countries. The remainder, \$321.8 million, is for raw materials and machinery, European arsenals and munitions plants.

It breaks down as follows:

Machine tools, machinery and production equipment	\$124,100,000
Carbon steel	27,200,000
Alloy steel	6,900,000
Copper	23,200,000
Zinc	5,100,000
Aluminum	3,000,000
Nickel	1,000,000
Tungsten	400,000
Chromite	300,000
Miscellaneous, raw and processed materials	50,000,000
Components and parts	24,800,000
Technical assistance, patents, and royalties	25,600,000
Packing, handling and transportation	30,100,000

While much of the raw materials and machinery will be purchased in the United States, efforts will be directed toward as much foreign procurement as possible.



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CLEVELAND • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO

You Can RENT It — For Less

A machine tool rental plan financed by an old-line commercial bank is a milestone in the machine tool replacement problem. Stymied by lack of tax credit for accelerated depreciation, many companies operate obsolete tools. This plan permits deducting the cost of *NEW* machinery as an expense before taxes. In many cases, it costs less to rent than to buy.



By JOHN ANTHONY
Eastern Editor
THE IRON AGE

AMERICA'S industrial productivity is at the crossroads today. This is a matter of fundamental importance to every citizen. Increased productivity permits the wider distribution of the material advantages of mass production. The ability to produce real wealth is a good measure of a nation's progress. It rests on the capacity of its industries to lower the prices of their products over the long term and still maintain or advance wage rates.

Industrial productivity might be defined as the capacity of industry to absorb into its operations the newest and most efficient developments in production machinery. Today's productivity must be improved to support a rearmament pro-

gram for the burgeoning war. It would have to be improved if there were no threat of total war just to maintain a high standard of living for a growing population.

American industrial productivity has been declining ever since the end of World War II. More than 40 pct of the machine tools in service are 10 years old or older, a figure 5 pct higher than at the end of the last war. At least 95 pct of the nation's machine tools were designed more than 10 years ago. Yet the average life of a machine tool design today is no more than 7 to 8 years. Service beyond that period is usually at the expense of efficient operations.

American industry finds itself today in a



chronic state of under-mechanization for three principal reasons:

(1) Heavy corporation and personal income taxes limit capital funds that would be available otherwise for re-equipment of plant facilities. Federal and state corporation taxes have been averaging 40 pct—and they are headed higher. Taxes drain off funds that could be plowed back into the business. Taxes also reduce dividends, limiting re-investment by stockholders. Heavy personal income taxes limit the availability of equity capital. Taxes reduce the capital of closed corporations and unincorporated businesses.

(2) Treasury tax policy generally calls for the depreciation of production equipment over a 15 to 25-year period. This is the period of time recognized by the Treasury during which machines normally wear out or become obsolete. This policy completely ignores the rapid increase in the rate of obsolescence noted in the last few years due to accelerated improvements in the design of machine tools and other production machinery. So if a manufacturer wishes to remain competitive by replacing production equipment after 8 to 10 years, he must still amortize the equipment cost over the average 20-year period. Thus the manufacturer must absorb during the 8 to 10 years initial high productive life an additional 12 to 10 years of obsolescence.

(3) Haphazard industry policies govern the replacement of production equipment. Top level management has not always fully appreciated the heavy loss in earnings chargeable to continued operation of obsolete production equipment. Although well known to production engineers, such losses are often difficult to substantiate to a management concerned with the problems of insufficient liquid capital.

Faster Depreciation Unlikely

Within the next few years taxes will go up, not down. There is very little possibility of a shorter depreciation period for new machinery, except for a limited number of industries under full scale mobilization for war. The short term loss in Treasury revenue would be much too great to be acceptable to the Administration.

Management's viewpoint on the economics of obsolescence might be converted very rapidly if new equipment could be paid for realistically, out of earnings *before taxes*. Lacking any prospect of this development, the task of educating management on the cost of obsolescence is difficult.

The struggle to cut the Gordian knot of depreciation goes on constantly and often leads to rental plans that will permit manufacturers to

charge off rental payments for machinery *before taxes*. But the weakness of most of these plans, tax-wise, lies in their option to buy. Some of these plans have been held to be disguised conditional sales agreements, and rents paid have not been allowed as deductions. A buyer using such a rental plan may have to revise his tax returns, paying the added tax plus 6 pct interest. Some well-informed opinion in the machine tool industry holds that rentals with option to buy cannot be used to obtain tax advantages.

The profits of a manufacturing business today depend largely on reducing production costs. This means using the newest and most efficient production machinery possible. But profits do not depend on the ownership of this production machinery.

New Plan Now Working

A wholly new type of rental plan for machine tools and production machinery is now in operation to help industry replace its obsolete and worn out equipment. By this plan, industry is offered a mechanism with which it can economically improve its output per man-hour and maintain a competitive position. There is no option for the ultimate purchase of machinery. But there are tangible cash savings to the manufacturer who rents production machinery with a high obsolescence rate and low installation cost.

At the current stage of technology, as established by various surveys the average life of a production machine tool design is generally considered to be 7 to 8 years. After that time obsolescence usually sets in due to the cumulative effect of new developments. In order to maintain operations on a competitive basis, a manufacturer must charge off *after taxes* the difference between approximately 5 to 7 pct allowable depreciation and the higher rate needed for depreciation over the usable life of the machine.

Many manufacturers are unable or unwilling to replace obsolete machinery under these circumstances. So operating efficiency deteriorates, together with competitive position compared to newly equipped plants.

This rental plan for production equipment has been developed by Rentco, Inc., Philadelphia, a new company established to operate the plan. Much of the technical advice and assistance in setting up the plan was contributed by Lloyd & Arms, Inc., Philadelphia machine tool distributors. Officers of the new company include Phillip C. Herr, president; Frank A. Moorshead, Jr., vice-president; and C. V. Lloyd, secretary-treasurer.

Previous rental programs for machine tools have been limited because of inability to borrow from a bank or other financial institution. Girard Trust Co. Philadelphia, is financing the Rentco leasing program on selected risks, using the endorsement of Rentco, Inc., and the lease as secur-

WAR AND DEPRECIATION

Rearmament will not end the depreciation problems of industry. At the present stage of planning no thought is being given in Washington to shorter depreciation periods for standard machines except for producers that cannot readily reconvert to civilian goods production.

Renegotiation, as it has been practised so far, tends to penalize the more efficient manufacturer. All allowable costs are totaled and a standard percentage of profit based on costs is allowed the manufacturer. Manufacturers using this lease plan should be in a better position for renegotiation. Annual rental rates are higher than allowable annual depreciation, resulting in a higher renegotiated profit figure.

ity. Banks have heretofore shied away from machinery rental programs, due largely to a lack of knowledge of the machinery field. But Girard Trust Co. will have the benefit of financial participation and administration of the program by those experienced in the business.

The first use of the Rentco plan was made recently by Thompson Grinder Co., Springfield, Ohio. Thompson leased from Rentco a \$20,000 shaft turning machine for stepped shaft production. The machine is expected to be in use for 5 to 7 years before obsolescence sets in. The total rental cost for the normal 3 to 5 year term of the lease will be \$21,800. Use beyond that period, up to the maximum of 9½ years permitted by the lease, will involve an annual rental of approximately 4 pct of the total normal rent of the machine. All rentals paid are deductible as an expense *before taxes*. Rentco leases have also been made recently for printing machinery and auto trucks.

The Rentco lease provides for delivery of new equipment to the user for a normal term of 5 years. Annual rental rates are graduated downward over the normal term of the lease as shown in Table I. Rentals are lower in the last few years of the lease when the outlook for stable business conditions is least predictable. Thus the manufacturer contemplating lease of new equipment is in a good position to estimate operational savings with it during the first few years of the lease.

The normal 5-year term of the Rentco lease is predicated on use up to 2000 hr per year (fifty 40-hr weeks). The user pays a limited over-use charge when equipment is operated in excess of normal use during any single year. Over-use charges are credited against the total normal 5-year rent, reducing the normal term of the lease from 5 years to a minimum of 3 years.

With continuous over-use to the extent of

1333 hr or more per year in the first 3 years, the total normal rental will have been paid and the lease could be terminated then at the option of the user. Or it might be extended up to the maximum of 9½ years from the start of the lease, without any limit on use, at an annual rental during extended use of approximately 4 pct of the total normal rent. Such extended use under the lease can be cancelled by the user at the end of any quarterly period. Over-use charges in any year of the normal term are limited to a third of the annual rental. They are graduated downward as shown in Table II.

TABLE II
OVER-USE* RENTAL CHARGES
Per \$1000 of list price

	Per Hr	Max Per Year†
1st year.....	8¢	\$120.00
2nd year.....	6¾¢	90.00
3rd year.....	5¢	66.67
4th year.....	3¾¢	50.00
5th year.....	2¾¢	39.66

* Use beyond 2000 hr per year.

† Regardless of actual hours of over-use.

Since machine tools and production machinery have a relatively short life, the manufacturer wishing to remain competitive must decide whether he can afford to write off such a machine on a realistic basis. In a 5-year period he can take only about 25 pct depreciation as a tax reduction if he buys it. So the machine is required to earn *after taxes* a profit at least equal to the amount of the additional write-off.

Assume that a machine costing \$5000 can earn each year 40 pct of its cost before taxes. This machine will have a high productive life of 5 years, for example, and the manufacturer wants to amortize it in 5 years instead of over the average 20-year period of the Internal Revenue Code. Under these conditions, a comparison of costs with rental under the Rentco lease indicates that the earning power of the machine would be doubled in the 5-year life of the machine, as indicated in Table III.

In order to compare the cash flow in a purchase versus rental it can be assumed that a manufacturer can profitably use a machine costing \$5000 with a high productive life of 5 years

TABLE I

ANNUAL RENT*

1st year.....	\$360.00
2nd year.....	270.00
3rd year.....	200.00
4th year.....	150.00
5th year.....	110.00
6th to 9th year.....	44.44

* Per \$1000 of list price, based on normal use up to 2000 hr per year, and interest at 4 pct.



and for tax purposes, a 20-year depreciation period. Free corporate capital is used for the purchase, but for cost purposes the machine must earn 4 pct on capital invested. Insurance is estimated at \$3.50 per year per \$1000. In Table IV the calculation shows a rental saving of \$1822 in net cash paid out during the 5-year period.

TABLE III
COMPARISON OF EARNINGS

	5-Year Amortization— By Purchase	5-Year Expense— By Lease
Cost of machine	\$5,000	\$5,000
5-year earnings	10,000	10,000
Allowable depreciation, rental	1,250*	5,000*
Taxable profit	8,750	5,000
Income tax at 40 pct	3,500	2,000
Total cash outlay	8,500	7,000

* In this computation, no charge is made for interest on capital, insurance, etc.

To take the comparison a step further, it might be assumed that the machine earns each year 40 pct of its cost after material and labor but before taxes. In Table V the advantage in net cash retained by rental is \$1823. This calculation includes payment of federal and state corporation taxes at the old average of 40 pct on earnings. Higher taxes make leasing even more attractive. If the purchase were made with a 5-year bank loan, at 4 pct interest amortized quarterly, the advantage in net cash retained by rental would drop to \$1598, as shown in Table VI.

Even when business falls off sharply a few years after the acquisition of equipment under the Rentco plan, the manufacturer finds himself

TABLE IV
CASH FLOW COMPARISON
For a \$5000 Machine, Disregarding Earnings

Payments	Cash Flow by Purchase			Cash Flow by Lease		
	Total Cash Paid Out	Income Tax Savings*	Net Cash Paid Out	Total Cash Paid Out	Income Tax Savings*	Net Cash Paid Out
1st year	\$5,217	\$ 187	\$5,030	\$1,800	\$ 720	\$1,080
2nd year	207	183	24	1,350	540	810
3rd year	197	178	19	1,000	400	600
4th year	187	175	12	750	300	450
5th year	177	170	7	550	220	330
Total by purchase	5,985	893	5,092			
Total by lease	5,450	2,180	3,270	5,450	2,180	3,270
Net savings by lease	\$ 535	\$1,287	\$1,822			

* Represents income saved on expenses deductible before taxes.

TABLE V
CASH FLOW COMPARISON
For a \$5000 Machine Earning \$2000 a Year After Material and Labor but Before Taxes

Payments	Cash Flow by Purchase			Cash Flow by Lease		
	Net Cash Paid Out	Earnings	Net Cash Retained	Net Cash Paid Out	Earnings	Net Cash Retained
1st year	\$5,831	\$2,000	\$3,831	\$1,880	\$2,000	\$ 120
2nd year	824	2,000	1,176	1,610	2,000	390
3rd year	819	2,000	1,181	1,400	2,000	600
4th year	812	2,000	1,188	1,250	2,000	750
5th year	807	2,000	1,193	1,130	2,000	870
Total by purchase	9,093	10,000	907			
Total by lease	7,270	10,000	2,730	7,270	10,000	2,730
Advantage by lease in net cash retained			\$1,823			

in a better position than if a purchase had been made. Assume that a \$5000 machine were able to produce earnings at the rate of \$1.00 per hr of use. If business fell off so drastically that earnings of \$6000 the first year were reduced to

TABLE VII

LEASE AND PURCHASE COMPARISON

Assume Machine Costs \$5,000. Earnings \$1.00 per Hour of Use; \$5,000 Bank Loan Used to Purchase Machine is Repaid \$1,000 Yearly at 4 pct Interest

Explanation	1 Year		2 Years		3 Years		4 Years		5 Years	
	Lease	Purchase	Lease	Purchase	Lease	Purchase	Lease	Purchase	Lease	Purchase
Annual Earnings	\$6,000	\$6,000	\$4,000	\$4,000	\$1,000	\$1,000				
Regular Rentals	1,800		1,350		1,000		250			
Over Use Rentals	600		450							
Extended Use Rentals										
Loan Payments		1,000		1,000		1,000		1,000		1,000
Interest		185		145		105		65		25
Insurance		17		18		17		18		17
Depreciation		(375)*		(250)		(250)		(250)		(250)
Cash Outgo before Tax	2,400	1,202	1,800	1,163	1,000	1,122	250	1,083		1,042
Profit before Income Tax	3,600	5,423	2,200	3,587		628	250	333		292
Income Tax at 40 pct	1,440	2,169	880	1,435		251	100	133		117
Total Cash Outgo Including Tax	3,840	3,371	2,680	2,598	1,000	1,373	150	950		925
Net Cash Retained:										
Annually	2,160	2,629	1,320	1,402		372	150	950		925
Cumulative	2,160	2,629	3,480	4,031	3,480	3,659	3,330	2,709	3,330	1,784
Advantage Lease/Purchase (Cumulative)		\$ 469		\$ 551		\$ 179	\$ 621		\$1,546	

TABLE VIII

LEASE AND PURCHASE COMPARISON

Assume Machine Costs \$5,000. Earnings \$1.00 per Hour of Use; \$5,000 Bank Loan Used to Purchase Machine is Repaid \$1,000 Yearly at 4 pct Interest

Explanation	1 Year		2 Years		3 Years		4 Years		5 Years		6 Years		7 Years		8 Years		9 Years		9½ Years	
	Lease	Purchase	Lease	Purchase	Lease	Purchase	Lease	Purchase	Lease	Purchase	Lease	Purchase	Lease	Purchase	Lease	Purchase	Lease	Purchase	Lease	Purchase
Annual Earnings.....	\$4,000	\$4,000	\$4,000	\$4,000	\$2,800	\$2,800	\$2,800	\$2,800	\$2,800	\$2,800	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$1,000	\$1,000
Regular Rentals.....	1,800		1,350		1,000		750		500		250		180		120		90			
Over Use Rentals.....	800		450		200		298		280		250		180		120		90			
Extended Use Rentals.....																				
Loan Payments.....		1,000		1,000		1,000		1,000		1,000		1,000		1,000		1,000		1,000		
Interest.....		105		17		105		17		26		18		17		18		17		
Insurance.....		17		18		17		18		17		18		17		18		17		
Depreciation.....		(250)		(250)		(250)		(250)		(250)		(250)		(250)		(250)		(250)		(125)
Cash Outgo before Tax.....	2,400	1,202	1,800	1,163	1,200	1,122	848	348	280	1,042	250	18	180	17	120	18	100	17	80	9
Profit before Income Tax.....	1,600	2,798	2,200	3,837	1,600	2,428	2,452	2,452	2,820	1,750	1,750	1,732	1,820	1,733	1,860	1,732	1,900	1,733	850	866
Income Tax at 40 pct.....	640	1,119	880	1,535	640	971	981	981	1,008	700	700	693	728	683	752	693	780	683	380	346
Total Cash Outgo Including Tax.....	3,040	2,621	2,680	2,959	1,840	2,093	1,829	2,070	1,288	2,045	950	711	908	710	872	711	860	710	430	355
Net Cash Retained.....	960	1,379	1,320	1,402	760	707	1,471	730	1,512	755	1,050	1,289	1,092	1,289	1,128	1,289	1,140	1,289	570	845
Cumulative.....	960	1,379	2,280	2,791	3,240	3,495	4,711	4,216	5,223	6,223	7,273	8,282	9,355	10,355	11,433	12,433	13,510	14,510	15,587	16,664
Advantage Lease/Purchase (Cumulative).....		\$ 419		\$ 531		\$ 248		\$ 493		\$ 1,250		\$ 1,011		\$ 813		\$ 682		\$ 562		\$ 427

TABLE VI

CASH FLOW COMPARISON

For a \$5000 Machine Earning \$2000 a Year After Material and Labor but Before Taxes. Cash Purchase by 5-year Bank Loan Amortized Quarterly

Payments	Cash Flow by Purchase			Cash Flow by Lease		
	Net Cash Paid Out	Cash Earnings	Net Cash Retained	Net Cash Paid Out	Cash Earnings	Net Cash Retained
1st year.....	\$1,822	\$2,000	\$ 178	\$1,880	\$2,000	\$ 120
2nd year.....	1,797	2,000	203	1,610	2,000	390
3rd year.....	1,774	2,000	226	1,400	2,000	600
4th year.....	1,749	2,000	251	1,250	2,000	750
5th year.....	1,726	2,000	274	1,130	2,000	870
Total by purchase.....	8,888	10,000	1,132			
Total by lease.....	7,270	10,000	2,730	7,270	10,000	2,730
Net cash retained by lease.....	\$1,598					

Advantages of this rental plan for production machinery, as compared with the purchase of equipment, are given here for companies that can borrow at 4 pct interest.

\$1000 the third year and nothing in the fourth and fifth years, rental would have a cumulative advantage of \$1546 by the end of the fifth year. In the example shown in Table VII, the lease would probably be terminated sometime during the fourth year, with realization of the full cumulative advantage over the 5-year period.

The advantages of rental continue throughout the full period of extended use, as indicated in Table VIII. The advantage begins to drop off after the fifth year, but in this typical example there is a cumulative advantage to the lessee of \$427 at the end of 9½ years, the maximum period permitted by the lease.

It would appear that virtually every responsible manufacturing firm would now be in a position to maintain its production facilities on a highly efficient basis. For many types of machinery installations there will be an end to the problem of whether new equipment can earn enough to pay the cost of accelerated depreciation after income taxes. Nor need a firm's working capital be tied up in fixed assets during the term of the lease. This is particularly important to closely held corporations in which liquidity is essential to protect the business against major refinancing because of the death of one or more of the principal stockholders.

The establishment of the Rentco plan is not expected to affect customary relationships between machinery builders and their distributors. Rentco expects to offer the facilities of its plan to distributors and manufacturers generally on a fee basis.

References

- "Plant Modernization Aided by Machine Tool Rental Plan," *THE IRON AGE*, Sept. 15, 1949, p. 80.
 "Depreciation Rules Curb Industrial Progress," *THE IRON AGE*, Apr. 27, 1950, p. 79.
 "Liberalized Depreciation—Industry's Vital Need," *THE IRON AGE*, Jan. 1, 1948, p. 168.

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Conveyers

SPEED SASH FINISHING



By WALTER RUDOLPH

Erie, Pa.

Truscon Steel's new \$1 million steel window sash plant includes a fully conveyerized Bonderizing-priming installation. Frames and vents, fabricated from cold-rolled sheet stock, are cleaned, Bonderized, painted, and baked in the 240-ft conveyerized unit within 100 min.

LAST fall at Truscon Steel Co., Youngstown, a new building involving an expenditure of about \$1 million was turned over to steel window sash production. This included a \$250,000 Bonderizing-priming plant. It is believed that this finishing setup is the world's largest system carrying products through various finishing operations.

All steel used in double-hung window fabrication is cold-rolled. It is primarily received as coil stock. It is given special surface preparation by passing through an electro-galvanizing bath. Stock enters the bath at one end of the setup, and is recoiled, ready for use, at the other end.

Sash consists of frames and vents. Two vents, an upper and lower, are assembled in each frame upon building erection. Vents and frames leave their fabrication trails, in this case welding stations, near the loading end of the huge finishing system.

Vents are usually piled 5 to 6 ft high on a roller conveyer. This is usually enough for an 8-hr run of the Bonderizer-primer, but the plant works ahead to keep production continuous. Frames, being more bulky and hence harder to handle, are hung on two 1200-ft monorail conveyers. When they are fully loaded, each of these conveyers has enough frames to go with the vents from the 8-hr finishing run.

The Bonderizing-priming operation was de-

signed by Truscon engineers. It utilizes component parts supplied by various manufacturers. Some 142 drawings were issued by the plant engineer's office for the project. Essentially, the designing of the system hinged around the maximum size of pieces that would be passed through it.

For instance, one of the improvisations early

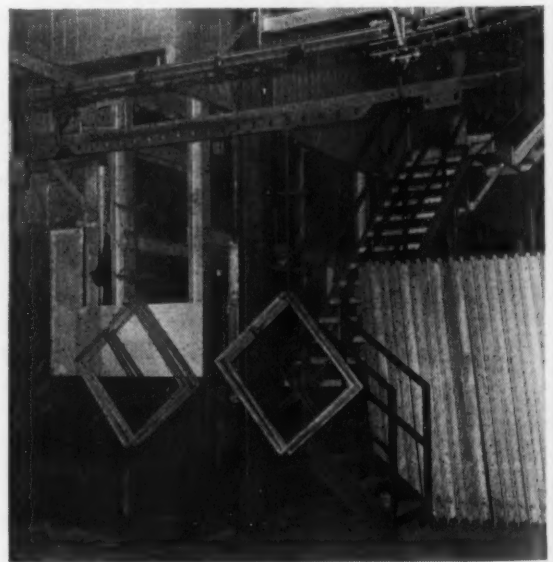
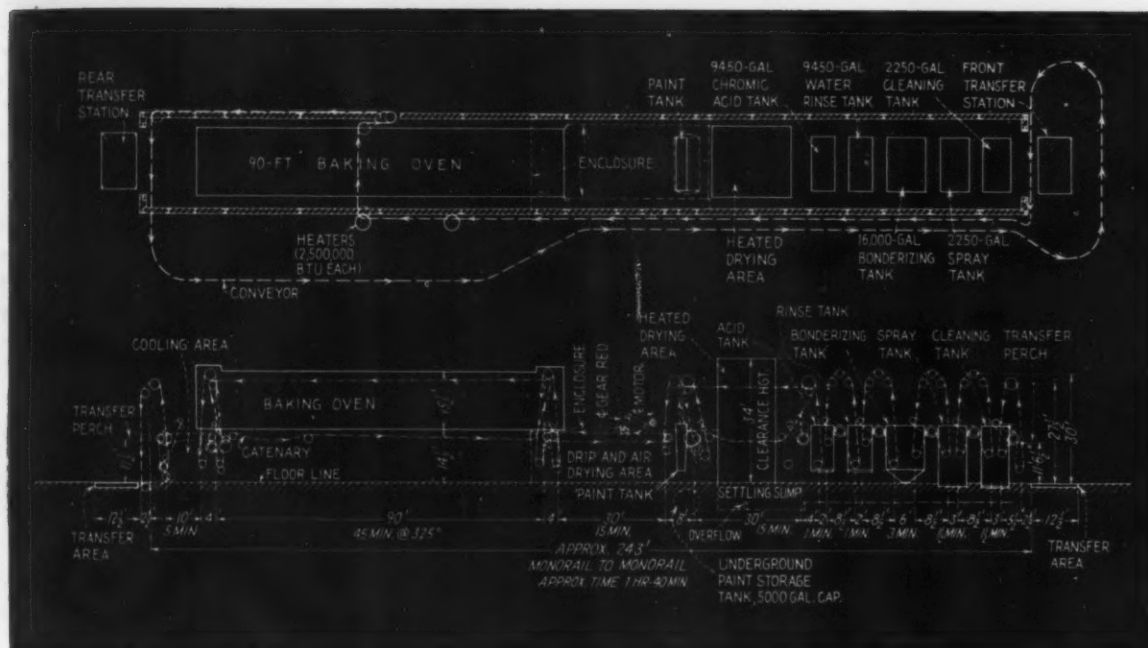


FIG. 1—Sash components, hanging from load bar, move to left where they are placed on a transfer perch at the front of the finishing tunnel.



in the scheme was a load hanger bar with which all frames and vents could be carried through the various finishing steps. The bar is $17\frac{1}{2}$ ft long. It consists of $\frac{1}{4}$ -in. steel web welded onto the bottom of standard 3-in. pipe. Ends of the bar are welded to wheel-shaped steel castings. These aid in handling the bar during its conveyerized trip. Over 130 of these load bars were made, each capable of handling 8x12-ft sash components.

When the bars are first loaded, they are traveling on a monorail conveyer that doubles back and forth at the front and back of the finishing system. This is essentially a huge enclosure about 26x30x243 cu ft in area. To carry frames and vents through the finishing system, the loaded bars must be transferred to a different conveyer system incorporated within the finishing enclosure.

This is done with a transferring mechanism. It takes load bars from the monorail and places them on a transfer perch, Fig. 1, and accompanying schematic drawing. Here, a double-chain conveyer engages ends of the bars and starts them through the finishing processes. The transfer is made in the following manner:

Upon entering the finishing tunnel, one of the hooks from which the load bar hangs trips an electrical control. Overhead, a carriage riding on four ball-bearing wheels and actuated by a crank travels 44 in. back and forth. On the forward stroke, the front wheels pass over a cam. Coming back, they pass under the cam. The cam actuates pickup hooks on load-carrying arms. These lift the load bars from the moving monorail conveyer in a rough oval path and deposits them on the perch at the front transfer station.

The monorail conveyer is now empty of the load bar. Next, it travels along the side of the enclosure to the rear transfer station which is over 240 ft away and at the rear end of the enclosure. Here a similar transfer mechanism picks up another load bar from the rear transfer perch and puts it on the monorail conveyer that doubles back to the entering end of the enclosure. This mechanism travels at about 20 fpm.

On the return trip, the monorail travels the load bars past an assembly and storage area. Here, the load bars are emptied of their frames and vents. These in turn are hung on another monorail conveyer for traveling through assembly or storage areas.

Next, lugs on a hoist chain engage the ends of the load bar at the front transfer perch and lift it up and over the edge of the first tank in the finishing enclosure. This is the cleaning tank as shown in the schematic. Here the load bar is set on a pair of chains that move horizontally through each of the finishing operations and over the processing tanks. Horizontal movement through the first two tanks is 3 ft.

This horizontal travel proceeds at about $1\frac{1}{2}$ ft per min. During the second 3 ft of the journey, the load bar suspends sash components in an alkaline detergent spray bath. One thousand gallons of cleaning solution is sprayed against the suspended pieces every minute, at 180°F . Heating, as in the following instances, is done with submerged steam coils.

After the horizontal chains travel the load bar through each tank, a pair of hoisting chains engage the bar and lift it out of one tank and into the next. This mechanical procedure is fol-

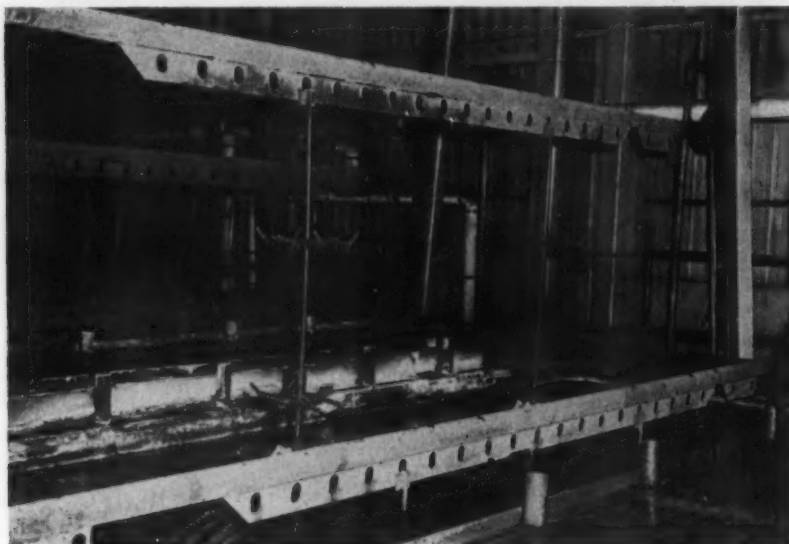


FIG. 2—Three load cars can be seen in this view of the conveyerized finishing tunnel. In the background can be seen a load bar rising out of the water rinsing tank. The second load bar, foreground, can be seen descending into the acid dip tank, while the third travels horizontally and to the right through the tank on the horizontal conveyor.

lowed right through the stages of Bonderizing-priming, with the exception of the air-drying period.

From the 1½-min rinse in the spray tank, the load bar passes into a 16,000-gal stainless steel Bonderizing tank. This tank is the largest of the lot. In it, the solution is held at 180°F. Bonderizing requires about 3 min. It is followed by a 1-min unheated rinse and then by a 1-min chromic-acid dip at 180°F, Fig. 2. The bar is then placed on a special pair of horizontal conveyor chains for the 15-min drying journey through a passage heated by unit heaters.

When dry, sash components are dipped into the paint tank, Fig. 3, for about 40 sec. Upon

emerging, they have a coat of lithophoame-base baking primer. The dip tank holds about 3000 gal at between 80° and 90°F for the proper viscosity. The paint is circulated by a 50-gal-per-min pump. Beneath the dip tank is a 5000-gal capacity safety storage tank, into which paint is dumped through a quick-acting valve in case of fire.

The next stage in the finishing journey of the load bars is a 15-min passage over a drip area, from which some of the paint is reclaimed and returned to the dip tank.

Baking is done in a 100-ft gas-fired oven at 300°F. It requires about 45 min. The entire finishing operation takes about 100 min, from

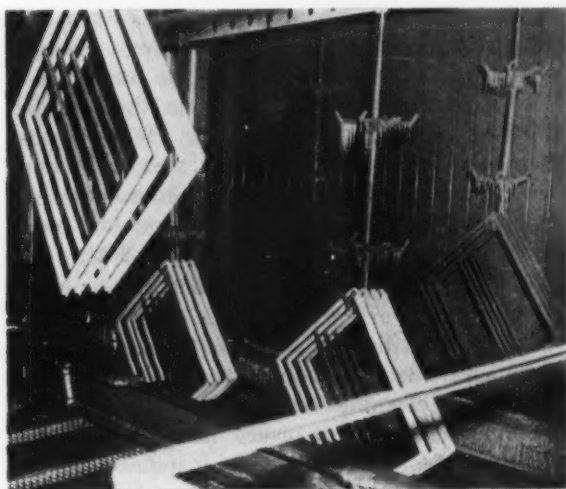


FIG. 3—Sash components, upper left, are approaching the paint dip tank. Those in lower foreground are entering the dip tank. Painted components, right, are being lowered to the drying area.



FIG. 4—Sash components, background, pass assembly area on storage conveyers waiting for use. Assembled sash are shown stacked.

perch to perch. Movement of parts from fabrication through finishing to assembly with a strict minimum of handling is exhibited throughout the plant. In fact, rather than stack components—with the exception of vents stacked on the roller conveyer—the plant hangs them and allows them to move along lengthy conveyers until needed in the manufacturing picture.

Several other features of the system are worth noting. A protective device was designed to prevent damage to the system in case of overload anywhere along the line. It works in the following manner:

Power for the conveyerization of bars, and for lifting and lowering over tanks, comes from

a single shaft about 240 ft in length. From this shaft stem reduction gear takeoffs for the elevator chains. With the main reduction gear and ten take-offs, eleven sets of reduction gears are required. At each point where power is taken from the main shaft, the safety device is set up.

It consists of a shear pin in a sprocket that is mounted on a threaded hub. When an overload exists, the pin shears, the sprocket moves out away from the takeoff and actuates a limit switch that shuts down the complete finishing operation. Timing of the operation, upon correction of the difficulty, is relatively simple. The sprocket is merely screwed back on until the shear pin fits the hole.

Quick Test

ELIMINATES BRAZING DEFECTS

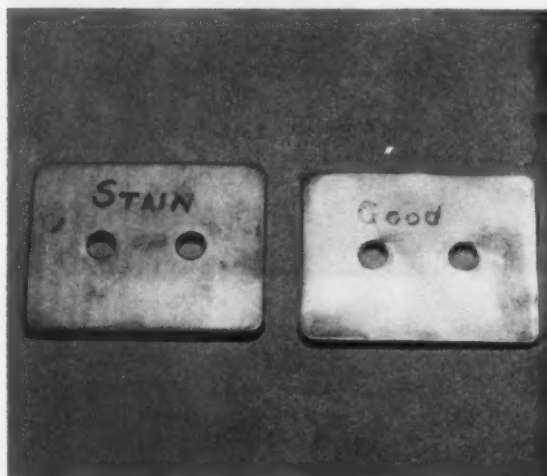
A SIMPLE test on cupro-nickel specimens quickly and accurately determines brazability. This test is based on the high correlation between surface brightness and brazability. Bright-surfaced specimens indicate satisfactory brazing qualities.

It has been the experience of many metal fabricators that certain lots of metal, due to some inherent variations, do not join in brazing as easily as others. These variations may reflect the presence of very minute quantities of impurities, the detection of which would require elaborate testing equipment. Therefore, to ascertain that a particular lot will produce no trouble during fabrication, some test—usually a quick one—must be used to determine its suitability. Such a test has been developed by the Riverside Metal Co., Riverside, N. J., to determine the brazability of its cupro-nickel alloys.

Several years ago, an Eastern manufacturer of heat exchangers periodically had its production line shut down due to defective brazing of the joints. The exchangers were being delivered from the furnace with the brazing metal and parent metal unjoined. After much investigation that delved into surface preparation and all the other usual checks, it was revealed that only particular heats of the cupro-nickel used for manufacturing the heat exchangers were causing trouble. At this point, Riverside was called in as a consultant to uncover the cause of the trouble.

The usual physical and chemical tests disclosed no clues as to why a particular heat of cupro-nickel could not be brazed satisfactorily. A method of testing each heat for brazability was sought. It was found that a high correlation existed between surface brightness and brazability. A test was then set up to rapidly determine brightness under brazing conditions. The procedure is as follows:

During the casting of each heat, a test coupon for determining brazability is taken. (It is stand-



VISUAL SURFACE TEST: Dull surface of test coupon at left indicates that metal from this heat will not braze satisfactorily. Bright-surfaced coupon, right, indicates a satisfactory heat.

ard practice to take a coupon of each heat for chemical analysis.)

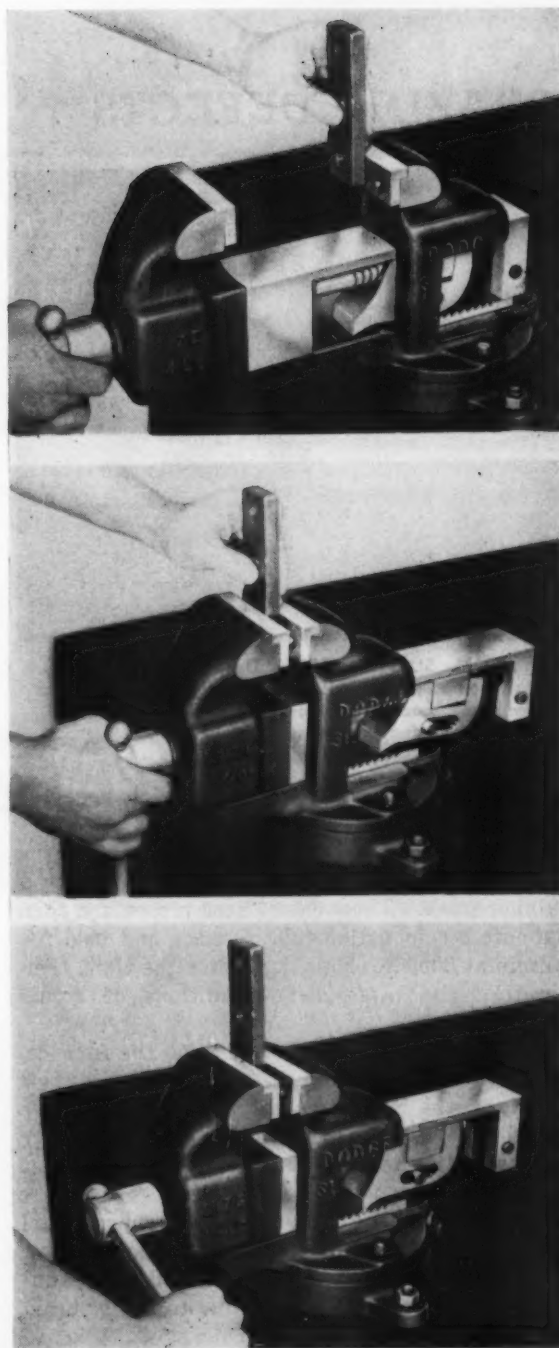
The test coupon is taken immediately to the laboratory rolling mill where it is reduced to a thinner gage. These latter test pieces are then put into a combustion tube furnace and held for 15 min at 2050°F. This duplicates the time, temperature and atmosphere conditions of actual brazing.

After the sample is removed from the furnace, its surface is examined visually. If the surface is bright, the heat is acceptable. If the surface is dull, the heat is rejected for heat exchanger stock and diverted to some other application that requires no brazing in fabrication.

This simple test avoids rolling any cupro-nickel for heat exchanger stock that might later prove unusable. Since the test was initiated, the manufacturer has suffered no loss due to faulty brazing of this alloy.

New Vise

Has Slide Action Jaw



ANYONE who has ever handled a vise knows the irritating slowness with which the movable jaw is cranked in and out by means of the handle. The time wasted can be considerable when a vise is in constant use to hold workpieces of varying thickness. In a case where a workman spends a lot of time, for instance, filing burrs off a mixture of three different size parts, he probably will have three vises lined up, each with its jaws open to approximately the size of one of the different parts—in preference to wasting time adjusting the jaws of a single vise to fit each time he picks up a part.

Now a speedily-adjustable vise is available, on which the handle serves only as a “gearshift lever” to disconnect the movable jaw so it can be positioned by hand, and to connect it again to the clamping mechanism when it is in position. The accompanying illustrations, cut away to show the interior mechanism of the vise, explain its action.

In the top picture, the jaws of the vise are wide open, with a thin piece to be clamped between them. The vise handle has been turned counter-clockwise, pushing on the outer end of the pawl, pivoting it around the center pin so that its lower end is retracted from the rack. The arm bearing the movable jaw is then free and can be pushed in until the jaw contacts the workpiece, as shown in the center picture.

At this point, the vise handle is turned clockwise, which pivots the pawl around the pin until its lower end bears against the nearest tooth on the rack, which prevents any further motion. Continued clockwise turning of the handle then pushes the entire arm forward, clamping the movable jaw against the workpiece.

The workpiece is thus held as rigidly as it would be in any other type of vise. Also, the holding pressure is variable according to the torque applied via the handle, just as with any other type of vise. The vise in clamped position is shown in the bottom picture.

The new vise was developed by the Dodge Mfg. Corp. A special handle design protects the user against pinching his skin when the handle drops during turning.

Continuous Carburizing

ADAPTED TO JOB SHOP LOTS



By HERBERT CHASE

WHEN the Clark Equipment Co. designed its new plant at Jackson, Mich., much attention was paid to a layout that would afford a continuous flow of parts with a minimum of handling and still provide uniform high quality. This posed a slight problem since there is always a constant change in parts being processed at this plant. Many parts are produced in sizable quantities. However, batches constantly vary from small to large depending upon orders received from different customers. In effect, these conditions make it necessary to operate the plant essentially on a job shop basis.

The products manufactured include many sizes and models of automotive transmissions and differentials. Production of these units also includes the manufacture of their related gears, shafts, housings and other parts. Most of the steel parts require heat-treatment, especially carburizing. As the size and types of parts vary constantly and specifications call for different depths of case, facilities for meeting these requirements efficiently are essential.

A study of continuous automatic gas carburizing made it evident that its convenience and economy would be advantageous if the process could be adapted to job shop lots. It was found possible to meet these conditions by using, as far as transmission parts are concerned, two three-

row, tray-pusher type, radiant tube Surface Combustion furnaces. These were equipped with RX generators for supplying and controlling the atmosphere.

These furnaces are supplemented by an older pusher type muffle furnace moved from an older plant. This old unit was installed to handle the production until the newer furnaces could be put into operation. The old furnace required two men to operate and could handle only 350 lb of parts an hour. Three men operate both of the new furnaces. In spite of the fact that these furnaces have a total capacity of 1500 lb per hr, the man on the outlet end has time to help load parts into the blasting unit. The latter is still used, but parts discharged from the carburizer are so clean that blasting is much reduced and may even be eliminated. Now most parts can be put through grinding machines without cleaning, since carbon left on surfaces is nearly negligible and no scale is formed.

Company specifications call for three depths of case: 0.030 to 0.040, 0.030 to 0.045, and 0.040-0.055 in. These depths are attained in both furnaces merely by setting of the pushers to give the desired time of transit through either furnace. There are three rows of trays in each furnace. The time for each row can be set for any given depth without affecting the other rows. All three

Parts are simultaneously carburized to three different case depths in a radiant tube pusher furnace. Close depth limits are held. Labor savings are considerable. Uniformity and minimum distortion are attained.

rows of trays are in a common tunnel. Parts pass through three zones in which the temperatures and atmosphere are precisely controlled.

As a high degree of uniformity is attained, the variation in depth of case being only 0.003 to 0.004 in., it is possible to operate the pushers for the first two case depths at the same rate. The pushing cycle in this case is 26 min. For the highest case depth, a 32-min cycle is used. Each row accommodates 19 trays of parts. One tray is ejected for each tray fed in, once the rows are filled.

Except for: (1) Loading trays; (2) moving them on the roller conveyor to the charging station; (3) rolling trays from the discharge end of the tempering furnace; and (4) returning trays on the gravity conveyor to the loading point, operations of the furnace is entirely automatic. Trays are moved automatically into the loading vestibule. Each tray is purged before the furnace door opens. Then the tray is pushed into the first zone of the carburizer.

Vestibule Is Air-Tight

The vestibule is an air-tight structure whose door is a part of the loading carriage. This door is sealed tightly during purging and pushing operations. A hydraulically actuated rack and pinion move the carriage when the operator presses control buttons.

There is one man at the loading end of each furnace. Besides keeping records, he has time to: (a) Take parts from tote boxes or racks; (b) place fixtures on trays; (c) load fixtures to specifications for each part in process; and (d) push the load to charging position, Fig. 1. After the complete cycle of the installation is finished, the trays issue onto a gravity roller conveyor. Parts are then unloaded for transfer to blasting machines. Trays are pushed along a roller conveyor back to the loading station. One man unloads trays from both furnaces and assists in loading blasting equipment.

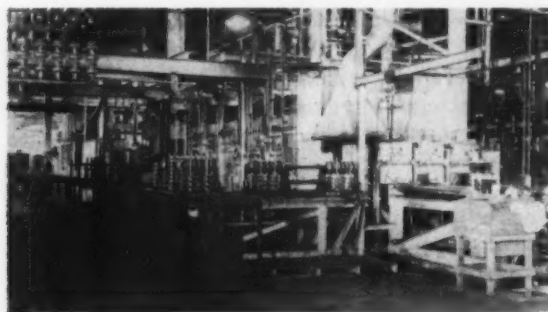


FIG. 1—At the loading end of the Surface Combustion continuous carburizing furnaces in Clark Equipment's Jackson plant, racks of gears and parts are shown entering the furnace on a roller conveyor.

After trays of parts pass through the three zones of heating in the carburizing furnace, each tray enters the discharge vestibule, which is already closed and purged. Then, the furnace discharge door closes and the tray with its load is dropped automatically into the quenching oil by a lowerator, Fig. 2. Quench oil is held thermostatically at 170° to 180°F. It is heated by steam or cooled by water in an exchanger as needed.

A pump driven by a 30-hp motor keeps the oil in rapid circulation. Oil is continuously centrifuged to remove solids. Each tray remains in the first quench position for 2 min before entering the second position in the quench tank. When the trays reach the third position in the quench tank, they are elevated, drained and pushed into a washer. Here a Wyandotte cleaner heated to 170°F is sprayed onto parts as the tray is advanced through a tunnel. In the latter half of this tunnel a hot water spray completes the cleaning. Trays then enter the convection type draw furnace where they remain for

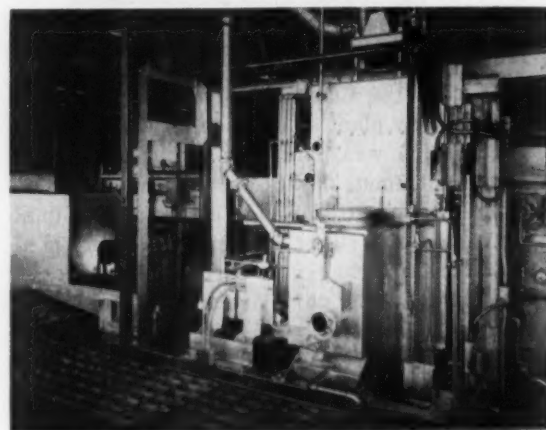


FIG. 2—Side view of the discharge end of one carburizing furnace shows the hooded vestibule for handling gears to be press quenched. Trays of quenched parts, left, are entering the washer. In foreground are trays on the return conveyor.

2 hr in air heated to 275° to 300°F before being ejected automatically. Parts issue from the draw furnace dry and clean except for a light coating of carbon.

Slots Are Liquid Cooled

At the discharge end of carburizing furnaces, Fig. 2, there are two slot openings to permit removal of gears for press quenching if desired. Slots have liquid cooled sills and refractory lined doors arranged for hydraulic operation through foot actuated control valves. Fig. 3 shows the general arrangement of the carburizing furnace, quench, washer and draw furnace in plan view.

An important feature of the heat treating setup is that shafts up to 22 in. in length can be set on end. In this position they are held in the racks as shown in Fig. 1. This tends to preclude

warpage and has nearly eliminated rejects. Also, the straightening operations that were often needed in older muffle furnaces in which shafts had to be heated in horizontal and inclined posi-

crack the noncombustible mixture of air and propane in the presence of a catalyst at high temperature. Each generator has a capacity of 2400 cfh. Resulting products are rapidly chilled and have

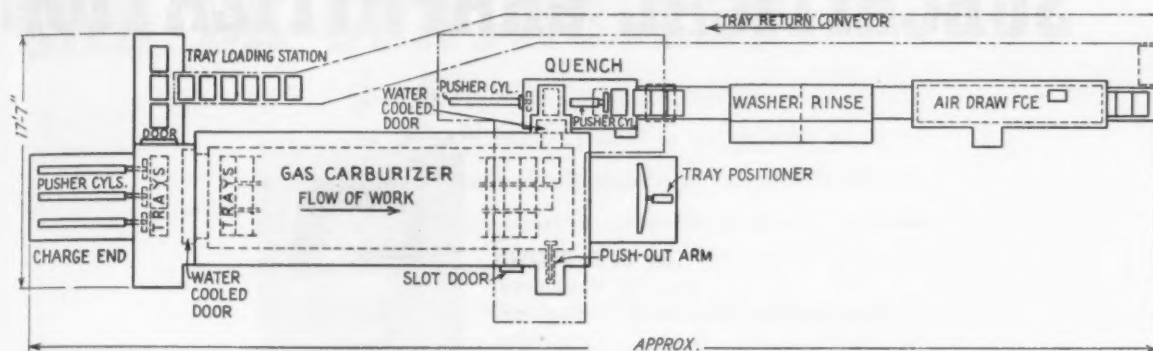


FIG. 3—Plan view shows general arrangement of the carburizing furnace with its three-row pusher and discharge mechanism, the quench, washer, and draw furnace. The tray return and loading conveyor is at top.

tions were greatly eliminated. As Fig. 1 shows, some gears are racked on horizontal bars in which position warpage is minimized. Small gears, especially of bevel types, are stacked on vertical pins with spacers between. Hub holes are not significantly changed in dimensions even though plugs are not inserted in hubs. Nearly all of the parts carburized are of SAE 4817, 4620, or 8620 steels. Trays and fixtures are cast from an alloy containing 35 pct Cr and 15 pct Ni.

Atmosphere Affects Success

Success in this heat treating setup, aside from features already described, depends largely upon maintaining the proper atmosphere in the carburizing furnace. With radiant tube heating and propane fuel, combustion takes place entirely within the tubes. Combustion products are thereby isolated and cannot enter the furnace atmosphere. Eductors are used to draw the fuel gas-air mixture through the radiant tubes and maintain a slight negative pressure in them. Therefore, any leaks in the tubes would be from the furnace atmosphere into the tubes, rather than the reverse. For this reason, there would still be no contamination of the atmosphere with combustion products. (Because of the vestibules and the arrangements for purging air from them, air cannot enter the carburizing chamber. Electric interlocks on entrance and exit doors prevent them from being open simultaneously.

The carburizing atmosphere is supplied by two Surface Combustion RX generators, portions of which can be seen in Fig. 4. These generators

low methane content and only slight traces of water and of carbon dioxide. The dew point of the gas is closely controlled. RX gas generated contains about: 20.7 pct Co, 38.7 pct H₂, 0.8 pct



FIG. 4—Overall view shows two carburizing and tempering lines. Discharge end of the tempering furnaces are at right and left. Carburizing furnaces are shown in background, above which are the RX generators that supply the carburizing atmosphere.

CH₄, and 39.8 pct N₂. For carburizing in the furnace, the RX gas is enriched with propane.

General results obtained with the carburizing furnaces are excellent. Besides overall economy, the uniformity in hardness and depth of case are factors of importance. Also of advantage is the near elimination of distortion which decreases salvage operations and helps to minimize scrapped parts.

SUBCRITICAL GRAPHITIZATION

By B. F. BROWN

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Cambridge



THE observation that cementite in steel can decompose to form graphite at temperatures below the critical goes back at least as early as 1922, when graphite was reported formed both in steel and in white cast iron annealed at subcritical temperatures. A few other observations of limited scope were reported later, but it remained for the group working with Austin to initiate a systematic study of the phenomenon.

In 1943 considerable impetus was given the study of this subject following the failure, attributed to the formation of graphite in service, of a welded steam pipe in a power plant. Subsequent investigation of a number of similar installations revealed that such graphitization was not a rare occurrence.

Mechanistically, the reaction involved proceeds by the nucleation of graphite nodules and the growth of these nodules through the addition of carbon; this carbon originates in the cementite which decomposes, its carbon diffusing through the ferrite to deposit on the growing graphite nodules and its iron joining the space lattice of the adjacent ferrite.

The lattice of graphite is layered hexagonal and does not resemble at all the lattices either of cementite or of ferrite; it is not one which would be expected to form coherent with either of the other lattices. It seems likely that the site of nucleation of graphite is at the interface between cementite and ferrite; direct experimental test of this would be difficult, but a number of indirect observations substantiate this view.

The amount of carbon in solution in ferrite in equilibrium with graphite is less than that in equilibrium with cementite, Fig. 1. This difference is an indication of the diffusion potential under which carbon diffuses from the cementite of pearlite through ferrite to deposit on graphite.

That the rate of nucleation at a constant temperature is one of the important factors influencing the overall rate of graphitization was shown in earlier investigations.¹ Data assembled in the field of malleabilization of white cast iron have indicated that, below the critical range, the rate of nucleation of graphite nodules becomes faster as the temperature is decreased.

If it is generally true that the rate of nucleation of graphite nodules is faster at lower temperatures, this would explain why completely graphitized steel shows larger but fewer nodules when graphitized at higher temperature;¹ why pretreatment at 1240°F greatly accelerates graphitization at 1320°F;² why pretempering at 750°F tremendously accelerates subsequent

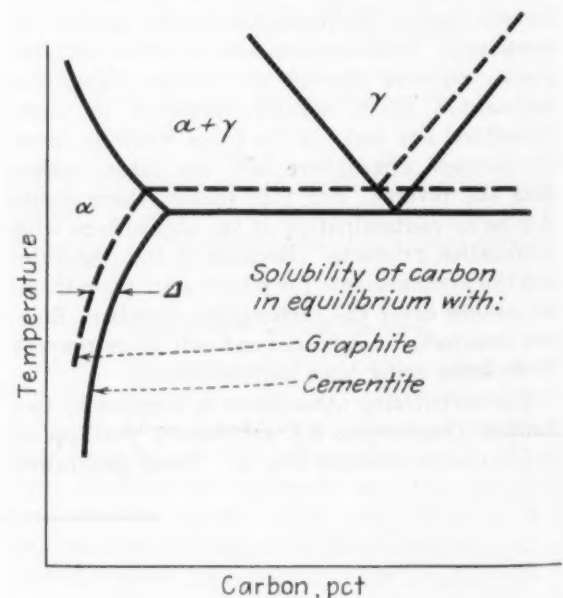


FIG. 1—Equilibria in the iron-graphite and iron-iron carbide systems, illustrating the concentration differential in ferrite involved in the diffusion of carbon through ferrite from cementite to graphite.

CAN BE CONTROLLED

Subcritical graphitization in steel is not so rare as to be a laboratory curiosity; it should be of concern in all applications of carbon-bearing steels as stressed members at temperatures above 750°F. The principles involved are comparatively simple. A relatively few critical experiments are cited which serve to define them quantitatively.

graphitization at higher temperatures;¹ and perhaps why a specimen cooled slowly from austenitizing (long times at low subcritical temperatures in the range of maximum effective nucleation rate) graphitizes more rapidly than a normalized specimen.² It may also be that fluctuating temperature, which has been suggested as a possible factor in accelerating graphitization, may do so by providing for faster nucleation at the lower ranges of the temperature cycle.

Growth Rate Important

A graphite embryo of just sufficient size to become a nucleus at one temperature presumably is not large enough to be stable and grow at a higher temperature. Therefore, the rate of growth is probably an important factor in determining the number of nuclei formed at a low temperature which grow large enough to be stable at a higher temperature. Rate of nucleation is here presumed to increase with decreasing temperature and the rate of growth is known to decrease; one would expect to find some intermediate temperature at which a maximum number of nuclei would form which are stable at a given higher graphitization temperature.

Austin and Fetzer³ found prenucleating more effective at 750°F than at 390°F; Burgess⁴ reported what appeared to be a maximum (in white cast iron) at about 525°F; and Lorig and Samuels⁵ observed what appears to be a similar maximum in white cast iron at about 570°F. From these scattered data, an optimum prenucleating temperature does appear to exist at about 560°F, although this value would be expected to vary somewhat with composition and with graphitization temperature.

The effect of austenitizing and quenching a white cast iron before heating it to the conventional first stage malleabilization temperature is to greatly increase the rate of nucleation of graphite nodules. It has been demonstrated that

such prequenching treatment in white cast iron is virtually ineffective in accelerating graphitization unless martensite is formed.

Investigators⁷ found that prequenching is also effective in increasing the graphitization rate in steel, but others noted that here, too, prequenching is effective only when martensite is formed. It has been presumed by many malleable iron investigators that the prequenching effect is one of increasing the number of carbide particles and hence increasing the surface area of the carbides. It might also be noted that, in increasing the number of carbides, the average curvature of the carbide surfaces is sharper, which would tend to decrease their stability.

It has been proposed extensively that the effect of prequenching is one of the formation of microcracks, which would be favored sites of nucleation. While this is not unreasonable, it has not been substantiated by direct observations, and the various demonstrations of the importance of carbide area and contour appear to provide a satisfactory explanation of the effect of prequenching.

Austenite Quenches to Martensite

It has long been known that the cool edge of the heat-affected zone in welded steels is the area most prone to graphitize. One might infer that this happens because austenite was formed there during welding and was quenched to martensite by the cooler portions of the welded plate. This martensite then would cause an increased rate of nucleation on subsequent subcritical graphitization.

European researchers proposed that particles of Al_2O_3 act as inoculants of graphite. Austin and Fetzer³ endeavored to substantiate this experimentally, and when they failed to get a good correlation between Al_2O_3 content and graphitization rate or a consistent effect by adding alumina, they concluded that "the state of aggregation of this oxide" determines whether the alumina will

act as an inoculant. Other experiments indicated that Al_2O_3 does not influence the reaction. It was proposed, in one instance, that some sort of inclusions—unspecified except as nonmetallic and too small to be seen—are the particles responsible for nucleation.

It has been suggested by some that there are traces of graphite—to act as nuclei—in all steels, and chemical analyses have been reported endeavoring to substantiate this. It is questionable, however, whether the chemical methods used would detect any graphite not visible in a well prepared metallographic specimen, and these in general are not seen except after long exposure under graphitizing conditions.

Chain Graphite Forms

It appears that at times, particularly with slow graphitization rates, nucleation occurs largely at the ferrite grain boundaries, giving rise to graphite formations described as "chain graphite" or "segregated graphite." These formations are similar to quasi-flake graphite frequently seen in cerium-treated irons and in malleablized copper-bearing irons in which elongated graphite formations are developed by preferential nucleation of graphite nodules near each other.

Fast rates of heating seem to favor grain boundary graphite. This might indicate that slow heating through the (postulated) region of most rapid effective nucleation tends to promote general nucleation; in specimens heated rapidly to high temperatures, the slower rates of nucleation prevailing at high temperatures gives an opportunity for the first few nuclei to grow and develop diffusion gradients about them. These diffusion gradients appear to inhibit other nucleation, the result being that the graphite nodules preferentially nucleated in such areas as grain boundaries or in banded zones have favored growth conditions.

If, on the other hand, the rate of nucleation

becomes large with respect to growth, as in pre-quenched specimens or in specimens pre-nucleated at low temperatures, many nuclei are formed everywhere in the structure before growth effects set up inhibiting conditions; the result is graphite so widely dispersed that it is not easy to discern any preferred sites.

The rate at which a given graphite nodule grows is an illuminating parameter of the rate of graphitization, but to date no measurements have been published for nodules forming in steel. Growth rates in subcritical graphitization of cast iron have been measured and found to decrease continually with decreasing reaction temperature.

The overall rate of reaction is given by the sum of the growth rates of the individual nodules. Even under the simplest circumstances to be expected—a parabolic growth rate and a nucleation rate which increases exponentially with time—the rate of reaction expressed mathematically is extremely unwieldy.

The actual course of the isothermal reaction has been measured, and the graphical representation resembles the sigmoid curve which describes the isothermal pearlite reaction; it was observed that changing the graphitization rate by altering the reaction temperature caused the curve to be shifted undistorted along the log time axis, Fig. 2. Different steels in general appear to have differently shaped reaction curves.

Since the rate of nucleation is here postulated as *increasing* with decreasing temperature, while the rate of growth is *decreasing*, then at some intermediate temperature there should be a maximum rate of reaction, Fig. 3. Such a maximum has been reported variously from 1110°F to 1275°F.

It has been reported that graphite in steel previously graphitized at lower temperatures was reconverted to carbide by holding at 1300°F. The investigators suggested that perhaps one type of cementite decomposed to form graphite, and when the cementite reformed, it was a new alloy carbide more stable than graphite, although no diffraction data were taken to substantiate this. A second explanation seems possible: If at 1300°F the temperature fluctuated fairly

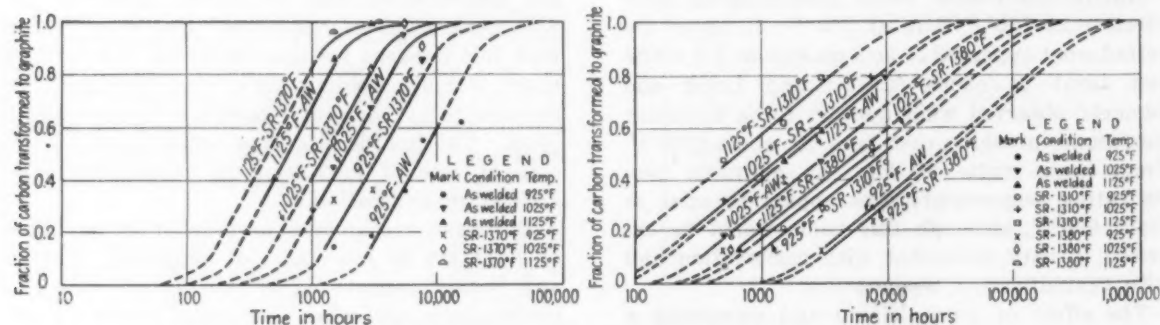


FIG. 2—Isothermal graphitization curves showing the effect of temperature, over a limited range, on the reaction. Note difference in shape of reaction curves for plain carbon steel (left) and C-Mn steel (right), as well as the effect of welding. Drawings courtesy Hoyt and Hall, ASME Trans. 69 (1947).

rapidly, because of the sharply sloping solvus line appreciable carbon from graphite goes into solution in the ferrite on rising temperature.

On falling temperature, carbon will not diffuse back to and plate out on graphite as readily as it will dissolve from graphite, and as a consequence

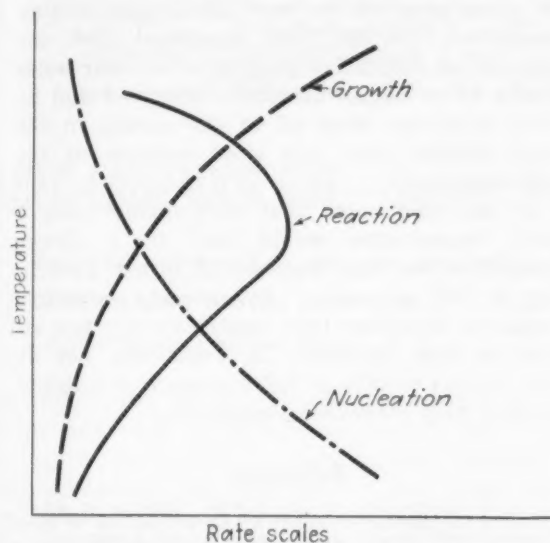


FIG. 3—Effect of temperature on rate of nucleation and rate of growth of graphite nodules, and on rate of reaction in subcritical graphitization. Drawing is largely schematic.

the more readily formed cementite precipitates and grows during succeeding cycles. Such a train of events, which would be conceivable simply as a consequence of the relative kinetics of the solution and precipitation of graphite and cementite, would be greatly abetted if the rising part of the cycle were comparatively slow and the falling part of the cycle were relatively fast. The theoretical implications of this reversion effect—if it is a true one—are so important that the experiment should be repeated with utmost precautions to insure certain control over temperature.

Many studies have been made on the effect of alloying elements in cast iron on the rate of the gamma-range graphitization reaction (first stage malleabilization) and on the rate of decomposition of pearlite in irons containing graphite. These studies shed light on the effect of composition on subcritical graphitization in steel, but it is necessary to note two differences: (a) In general, the partition of an alloy between austenite and cementite will not be the same as the partition between ferrite and cementite; and (b) the studies on the rate of decomposition of pearlite where graphite is present are in essence growth rate studies, because in most such instances no new nuclei form; in the case of graphitization of steel, the rate of nucleation is an important measure of the overall rate.

Many researches on the effect of composition on the subcritical graphitization of steel have

been published. The results, in many of the studies, have not been clear cut.

It is to be noted that oxygen and hydrogen appear to be extremely powerful carbide stabilizers, and that several elements such as aluminum and titanium probably act as graphitizers only or largely through their deoxidizing effect. It has been reported that "abnormal" steels are more prone to graphitize than "normal" steels, these terms referring to behavior in the McQuaid-Ehn test. One is led to wonder whether this is not an oxygen effect controlling both phenomena.

Austin and coworkers conducted their heat treatments largely in lead pots covered with charcoal. Under such conditions hydrogen is reduced from moisture in the charcoal, diffuses through to the specimen, and is quite effective in retarding graphitization. Hence the effect of using lead not protected against oxidation by charcoal, attributed to an accelerating effect of oxygen, is undoubtedly really an effort of not retarding the graphitization reaction with hydrogen. Inasmuch as Austin's group presumably carried out all their comparative studies under the same conditions, the results they obtained on comparative rates in different steels are probably still entirely dependable.

If the composition of the cementite is such that it is almost stable, the presence of hydrogen may conceivably increase the stability to a point where cementite will form at the expense of graphite. Such behavior has been reported in cast iron, but has not been confirmed.

Strain Affects Nucleation

A great number of observations have been made on the effect of strain on the rate of graphitization, and the effect seems to be a real one. This effect appears to be through increasing the rate of nucleation. In one study, straining by cold rolling was found to be ineffective, while tensile straining was effective; the effect of compressive deformation in accelerating graphitization has been investigated. Observers have found that the lines of localized deformation (yield point elongation), sometimes seen when pipe is bent, are areas of preferential graphitization. The reason for the effect of strain is not clear; perhaps it is one of fragmentation of carbides.

The expansion which accompanies the formation of graphite may lead to unusual appearances. In cast iron, it is not uncommon to find graphite deposited preferentially in cracks and interdendritic voids, and graphite has been seen forming preferentially in a crack in subcritically graphitized steel. It is interesting to speculate on the possibility that graphitization might serve to propagate the crack in such cases.

The hardness drop in a 1 pct carbon steel entailed by complete graphitization may amount to as much as 50 Rc. Steels containing graphite in random distribution are reported to show

reasonably good ductility, but when the graphite occurs as a semi-continuous grain boundary deposit, its deleterious effects are felt in ductility properties.

It has been observed that the graphite formed by subcritical graphitization can be readily dissolved at 1470°F to 1650°F, but the steel so treated regraphitizes just as it did originally; re-solution of graphite, then, is at best a temporary cure.

Chromium is widely used as a suitable and effective carbide stabilizer in amounts of 0.5 to 1.0 pct; it has been shown, however, that amounts of 0.5 pct or less are incompletely effective in stabilizing carbides in thoroughly deoxidized steel. Oxygen (in rimmed or capped steel) appears to be a powerful and lasting stabilizer and is probably one of the best specifics against graphitization where deoxidation is not necessary. Tellurium is observed to be a powerful carbide stabilizer in cast iron; its effectiveness is such as to recommend an investigation of its potentialities in stabilizing carbides in steel, although its behavior suggests that eventually it may escape from the solid metal by vaporization at high temperatures. Boron in appreciable excess of that required for

deoxidation acts as a powerful stabilizer in cast iron and might well be studied for suitability as a specific against graphitization in steel.

The observation that a preliminary anneal at about 1290°F markedly decreases the rate of graphitization at lower temperatures has led to the suggestion that such stabilizing treatment be given steel to be used under graphitizing conditions. It has been suggested that one method for preventing graphitization near welds would be to use an austenitic filler rod and by heat treatment move all of the carbon in the heat affected zone into solid solution in the austenite.

It has been noted that normalizing from a high temperature would lead to a slower graphitization rate than would either quenching or full annealing. In general, preventive measures involving heat treatments are not attractive ones, especially in weldments, nor do they appear to offer as full assurance of stability as does fully controlled composition.

References

- ¹C. R. Austin and B. S. Norris, "Effects of Small Amounts of Alloying Elements on Graphitization of Pure Hypoeutectoid Steels," ASM Trans. 30, 425 (1942).
- ²C. R. Austin and M. C. Fetzer, "Factors Controlling Graphitization of Carbon Steels at Subcritical Temperatures," ASM Trans. 35, 485 (1945).
- ³C. H. Lorig and M. L. Samuels, "Some Effects of Hydrogen on the Time of Malleabilization," AFS Symposium on the Graphitization of White Cast Iron, p. 107 (1942). C. O. Burgess, Discussion part of paper.
- ⁴C. R. Austin and M. C. Fetzer, "Effect of Composition and Steel Making Practice on Graphitization Below the A₁ of Eighteen One-Percent Plain Carbon Steels," AIME Trans. 145, 213 (1941).

New Books

"*Kent's Mechanical Engineer's Handbook*," twelfth edition. The handbook is presented in two volumes, the one on design and production edited by C. Carmichael, and the power volume edited by J. K. Salisbury. Engineers concerned with materials, processes, and the mechanical design and fabrication of equipment will find this completely covered in the design and production volume; the broad purpose of the entirely-rewritten power volume is to cover the whole field of heat-power engineering and transportation, as well as the important aspects of fluid flow. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. \$8.50 each.

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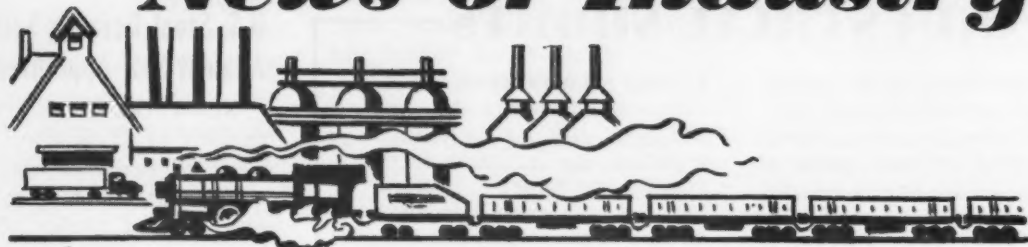
"*How to Run a Small Business*," by J. K. Lasser. Effective organization is the most important factor in the success of any business, and the author explains how to achieve it. This practical manual tells realistically the facts needed to make a business run more smoothly and profitably. Every basic business subject is covered in terms of small business. McGraw-Hill Book Co., 330 W. 42nd St., New York 18. \$3.95. 350 p.

"*The Right to Organize and Its Limits*," by K. Braun. This study gives a detailed analysis of similarities and dissimilarities in union, management and governmental views in the United States and selected European countries. Much of the volume is devoted to an examination of devices to compel workers to belong to organized groups, especially the closed and union shop agreement. Brookings Institution, 722 Jackson Place, N. W., Washington 6, D. C. \$3.00. 332 p.

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"*Residual Stresses in Metals*," by W. M. Baldwin, Jr. Comprising the 1949 ASTM Edgar Marburg Lecture, the booklet covers the fundamental differences in the mechanisms by which residual stresses are developed by cold-working operations, by heat treatment, and by casting and welding. Experimental methods used to evaluate residual stresses, various stress patterns found in fabrication, effects, and methods for elimination of residual stresses are also discussed. American Society for Testing Materials, 1916 Race St., Philadelphia 3. \$1.00 48 p.

News of Industry



QUEBEC-LABRADOR ORE—Sooner Than You Think

Railroad construction may be speeded by 2 years . . . New drillings have proven more ore . . . Total reserves are now estimated at 2 billion tons.—By Tom C. Campbell.

New York—The great Quebec-Labrador iron ore project may come to life much sooner than thought a year ago. At that time it was believed that construction of the 360 miles railroad would start in 1952. Latest word is that construction may begin this fall—there is much more than an even chance that this will happen.

Within the next few weeks several large contractors who have studied the job will submit bids to build the road. They have looked over the entire field and know what the score is.

Five New Partners

Final surveys have been made. Locations are completed and amounts of material have been correctly estimated. All that remains is the financing and the start of the building. Both of these items will be taken care of within the next month or so.

The five steel companies (THE IRON AGE, Dec. 1, 1949, p. 109) having options on ore deposits in the far north are expected to take them up soon and become firm partners in one of the biggest ore undertakings since the Mesabi Range was developed.

Reserve Estimates Raised

The high steel rate and the certainty of heavy war and defense requirements have again placed the spotlight on the dwindling supply of open pit high grade ore left in the United States. Ore from Canada, South America and from

taconite development will be needed in this country much sooner than generally believed—at least one steel and iron ore expert thinks.

Government Will Cooperate

More important than the beginning of the railroad construction to Burnt Creek, Quebec (THE IRON AGE, Nov. 4, 1948, p. 155) has been a reappraisal of the amount of high grade ore in that development. At first it was thought that it amounted to about a billion tons. Within the past 2 weeks the still-conservative estimate has been revised to 2 billion tons.

This new estimate is based on more drillings recently completed which have uncovered additional ore bodies and have proven that the field is almost beyond compre-

Plan \$2,250,000 Laboratory

Plainfield, N. J.—The contract for the design and construction of Continental Oil Co.'s proposed \$2,250,000 laboratory building at Ponca City, Okla., has been awarded to Wigton-Abbott Corp. of this city.

Build Steel Mill in Israel

Haifa, Israel—A steel plant is being built here by Israel Rolling Mills, Ltd. Three rolling mills, 18 in., 12 in., and 10 in., are in the plans. They will roll down imported billets, probably from Belgium.

hension. Some sources within the companies involved believe that once mining starts additional drillings will uncover amounts of iron ore equal to what is being mined.

The railroad will probably cost \$115 to \$120 million instead of \$100 million which had been previously estimated. The higher estimate is due to increased costs of construction in the past 2 years. There will be no trouble in getting priorities from the Canadian Government for this construction. Assurances have been given by Ottawa that the railroad will get the right of way on materials. Completion will take 4 years but in an emergency the time could be cut to 2½ years.

Drilling in the past several months has raised the actually proven iron ore in Quebec-Labrador to nearly 400 million tons. Drilling is now about completed until the road is built because of the ease with which additional ore is found. It is there. What's the use of expensive drilling at this time.

Gets Stainless Studies Contract

New York—Studies of the dimensional stability of stainless steel and of the nature of rupture in stress-rupture tests will be made at New York University's College of Engineering Research Div. under a contract awarded by International Nickel Co.

To Make Trucks in Australia

London—International Harvester Co. of Great Britain will manufacture trucks in Australia. The firm will build a factory at Dandenong, Victoria.

INDUSTRIAL SHORTS

TO NEW QUARTERS—Spiraling demand and the need for accelerated production has forced FLEXIBLE TUBING CORP. to begin construction of a new 13,000 sq ft brick and steel plant in Guilford, Conn. Founded in 1947 by Frederick K. Daggett, president, the firm manufactures Spiratube at its Branford, Conn., plant. Completion date was set as Nov. 15, 1950.

CENTER OF ATTRACTION—Located in an area where all its raw materials can be piped in from adjacent plants, a large trichlorethylene manufacturing plant has been completed by HOOKER-DETREX INC. It will make Perm-A-Clor and Triad metal degreasing solvents for the DETREX CORP., Detroit. The plant will be going full blast by Nov. 1.

NEW IN INDUSTRY—A new company, ARDEC, INC., Media, Pa., has been formed to specialize in the manufacture of precision parts and assemblies on a production basis for aircraft, automotive, diesel engine, instrument, electronic, small arms, and allied industries. ARDEC will also handle special engineering and research problems, including production of prototype and testing units. William A. Arnken is president.

POLICY MAKERS—A 16-man exhibitors' advisory board has been named to help in direction of policies for the PLANT MAINTENANCE SHOW and the conference on plant maintenance techniques to be held in Cleveland from Jan. 15 to 18. Board members represent a cross-section of firms making cost-cutting maintenance equipment.

CHIKSAN APPOINTMENTS—Two firms have been named representatives for the CHIKSAN CO., Brea, Calif. They are CLIFFORD B. IBES & CO., Narberth, Pa., for the Philadelphia territory, and the RHODES CONTROL CO., Baltimore, Md., for the Baltimore area.

UNDER NEW CORPORATION—Operated before by the ALLISON DIV. of GENERAL MOTORS, the ALLISON-BEDFORD FOUNDRY, Bedford, Ind., has been made a separate division of the corporation known as the BEDFORD FOUNDRY DIV. C. M. Jessup, in charge of BEDFORD operations since October, 1945, has been named general manager.

TERRITORY DIVISION—Its Midwest sales area has been realigned by the SCINTILLA-MAGNETO DIV. of the BENDIX AVIATIONS CORP., Sidney, N. Y. The 16 states in the Midwest, South, and Southwest which were the firm's Midwest territory, are now two territories—the North Midwest and the South Midwest. W. G. Roloson will head the North Midwest territory.

PLANNING TO MOVE—LURIA BROS. & CO., scrap iron and steel brokers, have leased 3000 sq ft of space in the newly-completed 36-story office building at 100 Park Ave., N. Y. The firm has spent many years in the Woolworth Building and expects to move shortly.

NEW OFFICE—The SUPERIOR ELECTRIC CO., Bristol, Conn., will open a Cleveland office to serve the Ohio and Western Pennsylvania areas. It will be located in the Fidelity Building. In charge will be Harold W. Lorenson.

NAME DEALERS—DOWZER ELECTRIC MACHINERY WORKS, INC., Mt. Vernon, Ill., and REEVES & SKINNER MACHINERY CO., St. Louis, are newly named dealers for ALLIS-CHALMERS general machinery division.

PHILADELPHIA OFFICE—An eastern division office at 2829 N. Broad St., Philadelphia, has been opened by INTERSTATE MACHINERY CO., INC., Chicago. Frank J. Lunney has been appointed eastern division manager.

U.S. Steel Defends Self Against Self-Appointed Salesmen

New York—Quick defenses were thrown by U. S. Steel Corp. last week to preserve its reputation which was being besmirched in a new rash of "daisy chain" offerings of steel that saw self-appointed U. S. Steel representatives freely offering the corporation's steel at gray market prices.

In a statement, president Benjamin F. Fairless disclaimed the right of any person to offer U. S. Steel products at premium prices to a favored few. He threatened to cut off any purchaser who "is found to have resold in the gray market."

One particular barb in the corporation's side was placed there by a midtown New York "broker" who offered 2500 tons a month of cold-rolled sheets from any U. S. Steel subsidiary. No one at U. S. Steel had heard of the "broker." Previously when a similar proposition was tracked down, its instigator was convicted of using the mails to defraud.

Mr. Fairless cited reports of unknown U. S. Steel "representatives" peddling steel at premium. He denied their authority to do so and said that the policy of U. S. Steel is to sell steel directly to bona fide customers at published rates.

German Steel Exporting Up Despite Allied Production Limit

London—Bound by production restrictions of the Allied High Commission, West German mills are exporting steel at a heavier volume than foreseen. Their exports will reach 1.4 million tons in the current Marshall Plan year if continued at present rates, reveals a survey conducted by the British High Commissioner.

Approval had been given for the export of 900,000 tons for the 1949-50 year but the Germans passed this mark at the end of March. When German production was fixed, the Allies had not anticipated such a steep rise in

crude steel exports, believing that Germany would find it more profitable to export finished steel products. Observers believe that the export spree may sway the Allies in lifting German production next month.

The report indicates that Ger-

many can compete strongly with other countries. While its prices are higher for some items, they are lower for others to result in a favorable general level. That the industry is now making substantial profits is evidenced by the large sums devoted to capital construction.

salary adjustments—one increase and three decreases in the cost-of-living allowance paid GM employees since the formula was adopted in May, 1948. The next review of the cost-of-living allowance will be in December, based on the BLS consumer price index for Oct. 15.

GM Escalator Clause Gains New Adherents

More firms include it in labor pacts . . . Packard agrees to cost-of-living wage ladder . . . Worldwide interest stirred in GM pact . . . Chrysler grants 10¢ rise—By Walter Patton.

Detroit — After standing relatively alone in the labor field during 1948 and 1949, the General Motors escalator type cost-of-living clause now seems to be the most highly-favored type of agreement in the auto industry. In addition to GM, Kelsey Hayes Wheel Co. and Campbell, Wyant and Cannon Foundry, Muskegon, have recently signed agreements calling for a cost-of-living adjustment and a yearly improvement factor. It is also significant that when the Packard strike was settled this week, the new contract included a GM type of wage adjustment.

Contract Interest Worldwide

GM spokesmen have indicated there have been widespread requests for information on the GM agreement, reflecting nationwide and even worldwide interest in its new 5-year contract.

Under the terms of the Kelsey-Hayes agreement, effective on July 1, workers will receive an improved pension and wages will be adjusted upward or downward based on the cost-of-living index prepared by the Bureau of Labor. The agreement is for 5 years and calls for an annual improvement factor of 4¢ per hr.

The Campbell, Wyant and Cannon Foundry agreement is only slightly different, providing a cost-of-living adjustment for every 1.25 change in the cost-of-living index and an annual improvement factor of 3¢ per hr for the first

4 years and 4¢ during the fifth year.

Under the GM wage adjustment formula, approximately 335,000 hourly-rated employees will receive an additional 5¢ per hr commencing Sept. 1. They have been receiving a 3¢ hourly cost-of-living allowance during the current quarterly period.

No Price Changes

In addition, approximately 76,000 GM salaried workers will receive an additional \$25 or a total of \$40 cost-of-living allowance for the period between Sept. 1 and Dec. 1. The allowance will be paid in December.

Simultaneously, GM has announced that no price changes are contemplated at this time.

There have been four wage and

Both Parties Happy

Both GM and its workers appear to be well satisfied with the way the escalator clause in its agreement has worked out. In effect, GM has eliminated all consideration of cost-of-living changes from its wage negotiations and has guaranteed its employees their present purchasing power plus a yearly gain. While Walter Reuther, president of the UAW-CIO has made it clear that receiving "wooden nickels of inflation" does not improve the worker's status, at least he is holding his own. Under the terms of the GM agreement, relations between the company and the union have undoubtedly been the best in the history of the company.

Packard, Chrysler Sign

Packard joined the automotive trend to the escalator clause this week by signing a 5-year labor treaty calling for \$125 pensions, an immediate 4¢ per hour wage rise, and an escalator clause adjustment of 5¢ an hour.

In a move that came as a shock to Detroit, Chrysler and the UAW-CIO signed an agreement last week which provided for a boost of 10¢ an hour for hourly employees, an extra 5¢ for some skilled workers, and a 7 pct raise for salaried workers. Omitted was the cost-of-living clause.

The union has recently indicated its intention to press for a wage increase at Ford. Negotiations at Ford are scheduled for reopening 30 to 60 days prior to Jan. 1, 1951. There has also been pressure on Detroit tool and die shops to increase wages in proportion to the upward swing in living costs. No adjustment is called for in the city-wide Detroit agreement for members of the Automotive Tool and Die Assn.



"Now let's stick together. I'd like to make one trip without a casualty."

Barium Steel Subsidiary Reacquires Jacobs Engine Co.

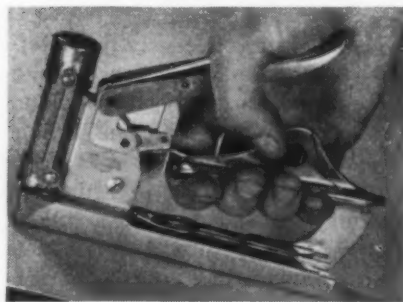
New York—Republic Industries, Inc., a Barium Steel Corp. subsidiary, last week reacquired the Jacobs Aircraft Engine Co. The Jacobs company produces aircraft engines used during the war in both U. S. and Canadian training planes and is also tooled up to produce 2 to 5 in. rockets.

Albert R. Jacobs remains president; Floyd Sisto, former vice-president and general manager of another Barium subsidiary, will assume those duties in the Jacobs firm; and Kenneth N. Thompson will remain as vice-president. Joseph A. Sisto and Rudolph Eberstadt, chairman and president, respectively of Barium Steel Corp., and Jules R. Breuchard, a Barium director and president of yet another subsidiary, have been added to the Jacobs board of directors with Messrs. Jacobs and Thompson.

Nazi Fastener Idea Adapted For American Use in New Rollpin

Union, N. J.—Nazi brains contributed a new "rolled pin" fastener idea to American technology when in 1942 it was found in one of their World War II aircraft cannon seized by U. S. soldiers. When its simple principles are explained to industrialists, they invariably mutter that someone here should have thought of it a long time ago.

Aptly called the Rollpin by its manufacturer, the Elastic Stop Nut Corp. of America, this city,



EASY BOLTING: Four Rollpins in the handle and trigger assemblies of this Hansen Tacker secure the linkage that transmits the operating force.

the cylindrical piece of rolled steel has chamfered ends and a lengthwise slot. Driven and compressed in a hole smaller than its diameter, the Rollpin is self-locking, does not protrude, and holds itself in place by exerting constant pressure against the walls.

It resists jarring and vibration with remarkable tenacity and has especial value where simple and economical assembly of parts is vital, replacing tapered pins, pressed fit pins or keys, pivot pins, dowel pins, or cotter pins. The Rollpin is finding wider application.

Aluminum War Needs Unknown to Producers

Louis Johnson sees 100,000 tons needed in coming year . . . Items already in tight supply are most necessary . . . All-out production poses power problem.—By John Anthony.

New York — With the Korean war over 2 months old, aluminum producers find themselves virtually in the dark on rearmament aluminum requirements and, despite National Security Resources Board work with the producers, estimates on requirements have not yet been developed.

The only tangible information released so far is an estimate made by Defense Secretary Louis Johnson that 100,000 tons of aluminum would be needed in the next fiscal year. Released to the public last week, this estimate was made July 25 before a House Appropriations subcommittee and contemplates a 69 group air force adding 4428 planes to the Air Force and 3357 to the Navy.

Demand is Not New

A military requirement taking only 14 pct of total national aluminum output wouldn't appear to cut heavily into the civilian market's supply but military orders already being placed by aircraft companies show up this fallacy. One October rolling schedule has earmarked 20 to 25 pct of sheet tonnage and 40 to 45 pct of such products as bar, rod and extrusions for the military.

Aluminum demand ran high long before the attack in Korea. Scare buying since has forced producers to screen orders and a large volume of inquiries is being turned away. The normal growth of this market had created a need for more ingot capacity regardless of war requirements

but the lack of low cost power was an obstacle difficult for producers to bridge.

Under wartime conditions, this obstacle is no longer a problem, as proved by the recent scramble for government-owned ingot facilities. Power can be allocated as it was during World War II, when New York City brownouts provided part of the power for the ingot plant at Massena, N. Y.

Unless there is total war, there will be no aluminum shortage for military requirements. Allocations, voluntary or otherwise, will provide all the aluminum needed for essential use at the expense of civilian production. The problem of the current rearmament program revolves around how much civilian consumption of aluminum is to be permitted and who is to do the allocating.

The recent sale of government facilities will add 108,000 tons of primary aluminum capacity a year only after power has been made available on a firm basis. The sale of the government plant at Massena to Alcoa will add another 108,000 tons a year if the power can be obtained. Availability of power would also enable idle capacity in the Northwest and Southeast to be put into service.

Some quarters feel that official Washington has been understating the need for more aluminum output. A feeling of complacency has also been fostered by industry statements designed to prevent scare buying.

The danger is that an all-out

Korean War Fosters Merchant Iron Squeeze

Midwest buyers pay premium prices . . . Demand outstrips supply . . . Inventory building difficult . . . Foreign iron welcome . . . Foundries may depend on scrap market—By Bill Lloyd.

war might require a sudden tremendous expansion. No one knows now how much aluminum might be needed for peak mobilization, and ingot plants and their power supplies take years to build. It took 2 years to build Canada's Shipshaw works during the war with materials flown in regardless of cost.

Alaska is Last Resort

With the U. S. power situation growing ever tighter, it would be a tremendous risk for private industry to undertake expansion of ingot capacity here. The peacetime market could not absorb aluminum made with high-cost power. The war-built plant in Burlington, N. J., never operated at all because the war ended before its completion and it had only high-cost power available. The plant at Riverbank, Calif., never operated more than one out of three potlines for the same reason.

Alaska is the one remaining area suitable for low-cost power development and ingot plant construction by private industry. A plant could be built there with ingot capacity of 300,000 to 400,000 tons annually, a project that would dwarf present expansion plans based on interruptible power. It would take 2 years or more to build, but such a plant could compete in the peacetime market. The probability of its construction is small due to the government's charge of a monopoly by Aluminum Co. of America.

Receive Orders for 650 Cars

Greenville, Pa.—Orders for 650 new freight cars plus repairs ordered for 125 old ones will assure full employment well into the second quarter of next year at the Greenville Steel Car Co., according to company officials.

Allis-Chalmers Insures Pensions

Milwaukee—Pensions for 29,900 of its employees will be insured by Allis-Chalmers Manufacturing Co., of this city, with the Bankers Life Co., Des Moines, Iowa. On the deposit administration basis, the pensions will be effective Sept. 1.

Cleveland — Midwestern merchant iron consumers were scrambling for tonnage this week as demand for all grades topped supply by a considerable margin.

The market for merchant iron is not disorderly, or in a state of panic, but premium prices are being paid for tonnage, and foreign iron is finding a quick home.

By these and other expedients, including a systematic prodding of regular sources of supply and cross-hauling, foundries have been trying to build up inventories, but demand from the automotive industry, farm implement and home appliance industries, in addition to seasonal requirements for furnaces, etc., have made it a difficult job.

Yard Stocks Low

At the same time, premium scrap for conversion ingots has been an item of great demand, and while foundries have been openly competing with mills and converters for the choice tonnage, stocks of scrap and merchant iron in most foundry yards leave something to be desired.

The squeeze in merchant iron

has developed during the past 60 days, coincident with the turn of events in Korea. Foundry customers, many of whom had reduced inventories substantially during the spring of 1949 and never built them up again, began filling up the bins. As a result, many foundries are working overtime, 6 days a week, and considering the addition of another shift.

Korean War Stimulus

High scrap costs have prompted steel producers who sell merchant iron to increase the hot metal charge to keep costs down, and as a result, their stocks are small, or comparatively non-existent. Lower scrap costs might make the supply more flexible, although not in terms of additional capacity.

Some of the major sources of foreign iron are known to be committed for the next 60 days, indicating that foundries will probably be forced to depend to a growing extent on the scrap market.

Prior to the outbreak in Korea, demand for merchant iron was lagging behind demand for other steel products. This was due almost entirely to the overstocked condition in which most users of castings found themselves as a carry-over from the hysteria of the first 2 years after the war, in the spring of 1949.

Feel Strike Effects

Prospects for the foundry business, and the merchant iron business for the next 6 to 8 months, and perhaps much longer, is prompting a restrained optimism from the most conservative elements in the trade.

A few foundries are presently feeling the effect of the strikes on the railroads and at the plants of two foundry coke producers, but these at worst will only defer temporarily an active market.



Nellie, the Riveter

Mobile—Nellie, the Riveter, has tired of compulsory retirement and is out to get a job in one of the three Mobile shipyards where she served during World War II. Many women are registering with the Alabama State Employment Service for jobs as experienced welders and riveters.

But so far the government has taken out only about a dozen of the 340 ships in the Tensas River mothball fleet. Until more ships go to the yards for servicing, it is doubtful if Nellie will land her defense job.

Photo-Plastic Gives Inside View of Machine Parts Stresses

Pittsburgh—"Photo-plastic," announced by Westinghouse Electric Corp. as a laboratory find more than a year ago, is helping industry build stronger machinery and equipment by permitting researchers to see stresses on machine parts in three dimensions.

The new plastic is formed into three-dimensional models of the machined part. It is subjected to equivalent service loads. Viewed through polarized light, varicolored lines show the points of greatest stress.

The material can be cast in chunks from ten to 20 times larger than any other previously available. Modified from Fosterite, a waterproof plastic used for sealing radio and radar parts during World War II, "photo-plastic" has found its way into gun factories, airplane engine plants, arsenals, naval laboratories, and universities.

House Committee Considers \$250 Million Freight Car Program

Washington—A proposal that the government build and operate a \$250 million freight car-leasing business was before a House committee this week.

Rep. Ellsworth, R., Ore., said recent car shortages had affected not only "substantial areas," but the "entire nation" as well. The House Commerce Committee is consider-

ing his proposal to establish a Railroad Car Reserve Corp., to send publicly-owned cars into areas of car shortages.

Priority for Steel

Under the Ellsworth plan, the Interstate Commerce Commission would conduct a continuing study of car shortages, and would from time to time tell the RCRC where

to send additional cars. The Commerce Dept., parent agency of the RCRC, would buy new cars on a cost-plus-fixed-fee basis.

Steel and other materials needed in construction of the new cars would be assigned "the highest priority compatible with military operations." Materials would be specially allocated to expedite the contracts.

Weirton Labor Harmony Stalls USW Organizing

USW confident publicly, leery privately . . . Must sign 30 pct of workers to get place in election . . . Weirton has had industrial peace for 17 years—By John Delaney.

Pittsburgh—The United Steelworkers of America (CIO) has no illusions about its chances of organizing the 10,000 production employees of the Weirton Steel Co.

Publicly the union is confident that its drive to replace the Weirton Independent Union, Inc., disbanded by a Federal Court decision, will be a success. Privately, they are not so sure.

The USW, old hands at the business, will conduct a skillful campaign, will exploit every possible angle, and play any weak spots for all they're worth.

Needs Poll Place

Problem No. 1 for the USW is to sign up enough members to get a place on the ballot in a National Labor Relations Board election, should one be petitioned for. The NLRB normally requires proof that at least 30 pct of the eligible employees have signed up. That in itself would be considered a victory of sorts. Even if such an election were lost, a good showing would make the USW happy.

The CIO union comes to bat in Weirton with two strikes against it. The entire town is independent-union-minded. Biggest reason is that company-independent union relations have been good—so good that the plant has had no work stoppages due to labor trouble in 17 years. Weirton merchants, who subsist on the mill payroll, are

particularly impressed, and favor the newly-organized Independent Steelworkers Union, which claims to have signed up some 70 pct of the eligible workers at \$2 a head. Weirton workers have also done well in matters of pay, social insurance, and retirement benefits.

The USW has poured thousands of dollars into Weirton without much to show for its efforts. It succeeded in having an earlier independent union disbanded as a company union. Charges of unfair labor practices against the company have dragged on in the courts for years—so long that the "Weirton Case" grew tiresome to everybody except the principals and the closest students of labor relations.

Orders WIU Disbanded

Drayton Heard ordered the WIU disbanded although it was popular with the majority, stating that the company subsequently interfered in its affairs and helped it to resist organizing efforts of the CIO. The court also found that Weirton discriminated against 18 employees for union activity.

The company also was ordered to withdraw recognition of the WIU as a bargaining agent, and to recognize no union for a period of 90 days.

Meanwhile, Weirton is in a delicate position. Until the matter of representation is settled, it can scarcely breathe in fear of invit-

ing unfair labor practice charges. The CIO has pledged itself to conduct a quiet campaign. Should trouble develop, however, who is going to restore order? T. E. Millsop, president of Weirton, is also \$1.00-a-year town mayor.

Who's Helping Who?

A question often asked is, "What can the CIO offer workers who have had steady work when other steel company employees were on strike, and who enjoy, as good or better wages, social benefits, and working conditions as steel workers elsewhere?"

Indications are that the CIO's answer will probably be that an independent union has no strength, will inevitably be dominated by the company; that any benefits Weirton employees now have are the result not of the independent union's bargaining power but only a reflection of the CIO's ability to negotiate concessions from virtually the balance of the industry.

On the other hand, Weirton has on occasion "jumped the gun" with benefits to its workers while the CIO was still struggling to win demands. In fact, Weirton once came through with a 10¢-an-hour pay increase after the CIO had virtually agreed to 6¢. As a result of Weirton's action, the CIO also won 10¢ from the rest of the industry.

Philip Murray, president of the CIO and USW, made a personal visit to Weirton on Aug. 25 to meet with District Director Paul Rusen and representatives of the 17 local USW unions in the immediate West Virginia-Ohio area. He also talked with several groups which had asked for a meeting.

Volunteer Military Priority

Washington—The list of firms giving voluntary priority to military orders was lengthened by the names of the 11 member companies of the Cast Iron Pressure Pipe Institute which recently advised the military that suppliers can gain preference if they hold telegraphic or written evidence attesting to the urgency of orders.

Eight-Country Group Studies U.S. Secondary Aluminum Methods

Washington—Wider and better uses for scrap aluminum in Western Europe is the objective of an Economic Cooperation Administration technical assistance group now studying U. S. methods in the field of secondary aluminum.

The team, drawn from eight Marshall Plan countries, is divided into two groups. One section will concentrate on observing the processes of recovery, remelting and casting of secondary aluminum, while the other will study remelting and refining of the metal and its use in wrought products.

Since the war, the consumption of aluminum in Marshall Plan countries has doubled. Prior to World War II, Western Europe imported about 12 pct of its aluminum. In 1949, \$60 million worth of the metal, or about one-half of its needs, was imported, mostly from Canada, with a small amount from the United States.

To Aid in Mill Modernization

Washington — As part of the over-all modernization plan for Italian steel production, the Economic Cooperation Administration is financing almost one-third of the cost of modernizing the Giuseppe e Fratelle Redaelli, S. p. A., steel plant at Rogoredo, Italy, largest of four plants operated by the firm.

Of the estimated total cost of \$3,125,000 for the project, ECA will provide \$983,000 for wire rod and light section mill equipment, to be bought in the United States. The plant has an annual capacity of about 100,000 tons, contains five furnaces and several rolling mills. Equipment to be furnished will eliminate hand looping.

Reports Record Assembling Month

Maywood, Calif.—Highest July activity in the postwar period was reported by the West Coast plant of Willys-Overland Motors here. It assembles station wagons, trucks, Jeeps, and Jeeps for the local market.

Deluxe Models Only?

New York — Fighter plane pilots feeling the need for a snack after a tiring time strafing troops or knocking down enemy planes will be able to pluck out a heated canned meal from a now-in-the-design-stage oven in the cabin of the plane. The Department of Defense release which described the device said that the pilot can do all this with one hand. A motor-driven can opener bares the can's contents. Other ovens have been completed for larger airplanes.

Timken Salaried Workers To Get 5 Pct Wage Increase

Canton, Ohio—A 5 pct increase in pay has been made to all salaried employees of Timken Roller Bearing Co., effective Sept. 3. All hourly-paid employees not members of any bargaining unit also will receive a 5 pct increase.

Representatives of the USW-CIO were invited to a meeting Aug. 24 to discuss wage increases for their members. Representatives of the AFL also received an invitation to discuss wage increases of those Timken employees covered by the AFL.

The Timken Co. also announced that a study is being made concerning a general price increase that will probably be made soon on bearings, rock bits and steel.

English Mill Plans Ore Dock

London—Ore discharging equipment on the river Tyne, England, costing nearly \$3 million, will be built by the Consett Iron Co., Ltd., which plans to boost its imported ore consumption to a million tons a year eventually. Ore will be discharged by a battery of five 10-ton grabbing cranes and will be weighed automatically as it goes from crane hoppers to conveyor belts leading to main storage bunkers.

The ECONOMIC SIDE

By JOSEPH STAGG LAWRENCE

*{This is the last column Mr. Lawrence wrote before
he died suddenly of a heart attack last week.}*

Ideological Gold Brick

WE had the dubious pleasure recently of listening to one of the intellectual outliers of British Socialism expand upon the virtues of austere living in England. In his catalogue of "social gains" were "full employment" and "fair prices."

The gist of the argument? There has been no unemployment in the British Isles since the Labor Party came into power. Ergo, this proves that socialism has solved the most intractable and possibly the most important problem of modern industrial societies.

In the U. S. the consumer must pay whatever price merciless monopolies choose to collect. In England prices are adjusted to the ability of the consumer to pay. If such prices do not cover costs, the government pays the difference in the form of a subsidy.

This specious dribble is put across by unctious liberals who are unable and unwilling to subject it to the stern test of fact and logic. The Labor Party has been in power for 5 years. Granted there has not been any unemployment. In a similar sense there has been no unemployment in the U. S. Nor has there, during this period, been any unemployment in Switzerland, Canada, Spain, Argentina, Belgium, Poland or the Ukraine. Does this prove that all these governments have solved the problem of unemployment? It proves nothing of the kind.

The entire world has been operating in an interwar boom due partly to the need for repairing the damage of the last war, partly to the satisfaction of needs deferred during the course of the war, and finally, in part, to anticipation of another war. An all-pervading stimulant augmenting these forces on the demand side

has been the certainty of further depreciation in currencies. Only a mind warped by categorical dogma could see in the natural result of these forces, a vindication of socialist planning.

How real the benefits from social security payments and subsidized prices are has just been explained in an interesting study of the British postwar economy made by a member of the U. S. Embassy in London.

In 1949 the British working class received cash payments from the government, in fulfillment of the "cradle to grave" security program, amounting to £110 million more than it received in 1938. During this same period subsidies increased by £212 million. The "redistribution of income" under government direction thus amounted to £322 million. This is the tag on the something-for-nothing gift which socialism everywhere holds forth for the guileless worker.

Consider now what happened to this beneficiary of utopian bounty in his capacity as a taxpayer. In this same period, i.e. 1938-1949, his direct taxes increased £139 million and his indirect taxes £371 million for a total of £510 million.

Thus the taxes which the naive British worker must pay exceed the value of all the handouts, in the form of baby bonuses, false teeth, free pills and phony prices for groceries, by £188 million. The worker as a taxpayer pays the government a great deal more than the value of the things which he gets from that government "for free."

As the facts become increasingly available it is clear that the British Labor Party has sold the English people a glittering ideological gold brick. Disillusionment has been postponed by gifts on a massive scale from this country and Canada.

Joseph Stagg Lawrence Pens "30" to Brilliant Career

New York—Joseph Stagg Lawrence, prominent economist and financial writer and a vice-president of Empire Trust Co., died suddenly of a heart attack Aug. 25 at his home at Lafayette, N. J. He was 54.

Mr. Lawrence was the author of several economics books including "Stabilization of Prices" and "Banking Concentration in the United States." He was also a contributing editor of THE IRON AGE.

Already a recognized authority in economics and finance, his regular feature in THE IRON AGE, "The Economic Side," had won him an extremely broad following in the metalworking industry during the past 3 years. His last column, written just before the fatal attack, appears on this page.

Born in Budapest in 1896, Mr. Lawrence came to the U. S. in 1903. He served with the U. S. Army during World War I. He was a Phi Beta Kappa graduate of Princeton in 1923, later teaching economics at Princeton and New York University. He joined Empire Trust Co. as a vice-president in 1942.

Call Machine Tool Expert to Navy

Washington—Commander R. E. W. Harrison, who has offices in Chambersburg, Pa., has been called back to active duty with the Navy Dept., effective Aug. 28. Having served for 2 years as Machine Tool Contract Officer and for 2 years as Special Assistant to the late James V. Forrestal, then Under-Secretary of the Navy, from 1940 through 1944, Commander Harrison will now serve in the Bureau of Ships.

He will again enter machine tool production pertinent to Navy needs. U. S. Naval Shipyards are among the largest users of light and heavy machine tools in America. A Naval Reserve officer since 1935, Commander Harrison is also a World War I veteran, serving in the British Army as an engineer.

Rem-Cru Officers Chosen

Bridgeport, Conn. — Rem-Cru Titanium, Inc., titanium and titanium alloy producing firm recently formed by Remington Arms Co., Inc., and Crucible Steel Co. of America (THE IRON AGE, Aug. 3, 1950, p. 95), has announced its officers and directors.

Board chairman is C. K. Davis, Remington president and general manager; president and director is W. H. Colvin, Jr., president of Crucible.

Other officers and directors are M. R. Warden, director; R. S. Poister, director and vice-president; W. U. Reisinger, director, vice-president and treasurer; L. L. Ferrall, director; W. F. H. Mattlage, vice-president; and K. R. Vogel, secretary.

LIFO Tax Relief Bill

Washington — Businessmen forced to replace low-cost inventories with high-cost goods may be due for tax relief soon.

Legislation now on President Truman's desk permits firms to use LIFO (last in, first out) accounting on such inventories back in 1940, even though they did not elect to do so at the time they paid taxes.

A Bureau of Internal Revenue ruling has prohibited the use of LIFO accounting by business firms unless the taxpayers announced such intention at the time of paying the tax. Retroactive relief back to 1940 would be possible under provisions of the bill (H.R. 3278) approved by Congress.

Steel Dividends Climb

Washington — Iron and steel company dividends were up sharply in June and July, showing more than 20 pct increase over the same 2 months last year, the Office of Business Economics reports. As a whole, industry's dividends were up 8 pct.

The increase in steel dividends came after 5 months during which

the level of such payments remained the same as for comparable months in 1949. June and July payments were \$63 million and \$20 million for 1950 as against \$50 million and \$18 million for the 2 months last year.

Automobile manufacturing dividends led all industries, a gain which has carried over from last year. Oil refining dividend disbursements showed a decline.

Tighten Shipments to Soviets

Washington — The Commerce Dept. has further tightened controls over exports to Soviet Russia and 13 so-called satellite countries. Effective Aug. 18, even small shipments of items valued at less than "dollar-value" which had previously been permitted without individual license, must have license for shipment to Russia, Albania, Bulgaria, China, Czechoslovakia, Estonia, Germany (Russian Zone), Hungary, Latvia, Lithuania, Manchuria, North Korea, Poland and Danzig.

Plowman Accepts Defense Job

New York — E. G. Plowman, U. S. Steel Corp. vice-president, has accepted the position of Director of Military Traffic Service on a temporary basis until a permanent director is selected. He did so at the request of Secretary of Defense Louis Johnson.

Mr. Plowman will continue to hold his position with U. S. Steel but, for the present, his time will go to his new Washington job of heading an agency to provide unified direction of all armed services traffic of persons and material in this country, and to decide on the methods and routes of transportation and rates to be negotiated with the commercial carriers.

Jamaica Resources to Aid U. S. Aluminum Stockpiling

Washington — The long-range outlook for the U. S. aluminum stockpile has been improved by a recent Economic Cooperation Administration grant.

Funds in the amount of \$2,500,000 and £1,500,000 (\$4,200,000) are to be advanced by the ECA to Jamaica Bauxites, Ltd. for the financing, in Jamaica, British West Indies, of a large part of the construction of a plant having production capacity of about 40,000 tons of semi-processed bauxite a year, together with equipment, establishment of bauxite mines, and transportation facilities. Over a period of 8 years the funds will be repaid in aluminum for the country's stockpile.

Sterling funds will come from Marshall Plan counterpart funds in Great Britain. Under the ECA Act, 5 pct of the counterpart funds (foreign currency deposited in participating countries to match ECA dollar grants) goes into an account credited to the U. S. for purchase of strategic materials and administrative expenses abroad.

Blitz Can Production Rises

Granite City, Ill. — "Blitz can" production at the Nesco, Inc., plant here will reach approximately 150,000 a month. The firm will start on its second Army Quartermaster Corps order for 539,000 of the 5-gal gasoline containers after completing 332,000 containers last month. The Granite City Steel Co. is expediting steel shipments to Nesco at the request of the Army.



Courtesy of Olem Caditz, President, Northern Metal Products Co.



SHOPPING FOR BLOWERS?

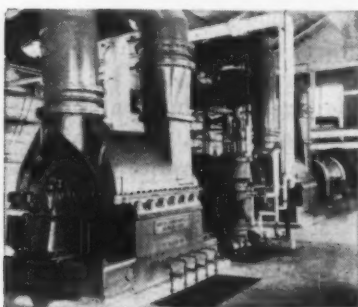
Look at R-C dual-ability with its wide selection to suit almost any job

Asking Roots-Connersville about blowers, exhausters and gas pumps has been standard practice among buyers for almost a century. That's because building such equipment is the only job we do. We're outstanding specialists in handling gas and air.

You'll gain from our wide varieties of sizes, types and capacities from 5 cfm to 100,000 cfm. We're the only manufacturers offering you the *dual-choice* between Centrifugal and Rotary Positive designs—and that *dual-ability* is important when it comes to matching the units to the jobs to be done.

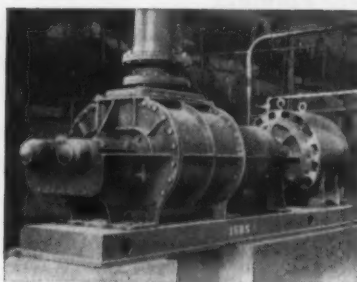
So—when shopping, be sure to call on Roots-Connersville, the specialists. When you're interested in vacuum pumps, meters or inert gas generators, we're equally well fitted to fill these needs, too.

ROOTS-CONNERSVILLE BLOWER CORPORATION
508 Ohio Avenue, Connersville, Indiana



Rotary Positive Gas Pump in eastern steel mill. Capacity 3,000 cfm.

ROTARY



Two 4-stage Centrifugal Boosters, with capacity of 27,000 cfm each, in steel mill service.

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• News of Industry •

New Policy Permits Premium Payments for Stockpile Materials

Washington — Premium payments to domestic producers of materials for the strategic stockpile in special cases where necessary to stimulate production of highly essential and scarce materials have been authorized by the Munitions Board.

The new policy removes the former limit of 25 pct above foreign price which could be paid to domestic producers unable to compete with foreign materials.

Emphasizing that the new policy is not a general subsidy, the Board stated that it would be applied in its strictest sense as outlined in the authorizing letter from Dr. John R. Steelman, assistant to the President.

The differential in excess of 25 pct will be paid only where it is deemed strategically urgent to procure some highly essential material.

Ask Funds to Develop Alaska

Washington—Congress has been asked to appropriate \$2.6 million in additional funds to speed up development of Alaska.

Of this amount, \$1.1 million would be used by the Interior Dept. to initiate planning and construction of the Eklutna hydroelectric project which was recently authorized by Congress.

Another \$1.5 million is requested for repairs and replacement of bridges on the Seward-Portage section of the Alaskan Railroad.

To Reline Sharon Blast Furnace

Sharon, Pa.—General cuts in customers' steel allotments for the coming months will be caused when Sharon Steel Corp.'s No. 2 blast furnace at the Farrell Works is shut down for 60 days to be relined, beginning Sept. 3. Lack of hot metal will also put three open-hearth out of production. The shutdown and its resultant decrease of pig iron and steel production will be joined by rising military needs to force general cuts in allotments.

Asks Legislation to Clarify Pricing Chaos

"Only thing left is legislation," says head of freight absorption Senate subcommittee . . . FTC chairman Mead follows line of hackneyed answers of FTC staff—By Gene Hardy.

Washington—Legislation is the only answer to the confusion over the legality of freight absorption and delivered prices.

This was evident after several days of hearings before the Senate watchdog subcommittee on freight absorption headed by Sen. Johnson, D., Colo. The major witness was FTC Chairman James M. Mead, who followed the old staff line of confusion compounded. In fairness to the former senator, however, it should be made clear that he stated that he had not had time to fully explore the problem. He was obviously relying on the hackneyed answers of the FTC legal and economic staff.

The hearing was called to obtain an elaboration on a series of written questions put forth by the subcommittee and the commission's answers. As had been previously indicated (THE IRON AGE, Aug. 24, 1950, p. 63) the answers did nothing toward assuring industry that present pricing practices are legal.

Gobblydegook Continues

It appeared that only traditional courtesy extended a former senator prevented Sen. Johnson from showing his irritation over staff-promulgated gobblydegook to an even greater degree. Even so, the subcommittee chairman told the FTC head that in his view the "only thing left is clarification by legislation." He termed Mr. Mead's testimony an "eloquent plea" for Congress to act. The Senator emphasized that "we can't have a little commission calling the tune" as to the future industrial progress of this country.

Perhaps his most significant statement was that the FTC was "trying to protect competitors, instead of competition."

In response to a direct question as to his views on the need for legislation, Mr. Mead stated that

he saw no reason for legislation yet, but that he did not want to foreclose the possibility.

The FTC chairman said that clarification would be coming from a number of pending cases, including the steel case, as indicated by the President in his veto message on S. 1008, the so-called basing-point bill. However, he did not give frank answers as to how these cases would help to clarify the situation.

Less Frank Than Previously

The chairman's testimony and the written replies were even less frank than previous commission pronouncements on both individual and so-called systematic freight absorption. Generally speaking, all of Mr. Mead's replies were based on the premise that the FTC cannot give off-the-cuff opinions or hypothetical answers to hypothetical questions. Mr. Mead deplored Commissioner Lowell Mason's lone wolf dissenting stand on this issue, but Sen. Johnson applauded Mr. Mason's efforts and pointed out that Mr. Mason, the only Republican member of the commission, was recently reappointed by the President and unanimously confirmed by the Senate. Mr. Mason in a written dissent told the subcommittee that FTC should admit its error and straighten out the situation.

Casting Society Offers Awards

Cleveland—Awards totaling \$1000 are being offered by the Steel Founders' Society of America for technical papers on new ideas applicable to the steel casting industry. The Society's purpose is to promote original thinking and practical applications in conjunction with its research and development program.

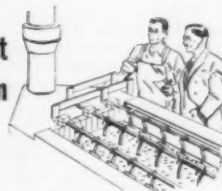
News about

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New primer for magnesium and aluminum

Hard-to-coat metals such as magnesium and aluminum get a finish that really sticks when coated with Unichrome Primer AP-10. Not only does this organic primer promote adhesion, but it also provides extra corrosion-resistance and increases durability of top coats used.



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• • • News of Industry • • •



STEEL CONSTRUCTION NEWS

New York—July bookings of fabricated structural steel continued for the second month at the highest peak reached since early 1942. According to reports received by the American Institute of Steel Construction, Inc., July bookings totaled 265,771 tons, just under the 266,612 tons booked during June. The total bookings for the first seven months of the year are 1,306,144 tons—58% greater than the bookings for the same period in 1949.

Shipments dropped from 172,096 tons in June to 132,367 tons for July, largely due to plant group vacations. The first seven months shipments totaled 1,058,678 tons; 8% less than for the corresponding months of last year.

The backlog (tonnage of orders booked and available for future fabrication) for the next four months only, has shown a large increase to 684,538 tons.

Following is the complete tabulation of bookings and shipments:

	Estimated for the Entire 1950	Total 1949	Tonnage Industry Avg. 1936 -1940
CONTRACTS CLOSED			
January ...	119,317	130,418	107,578
February ..	117,664	108,764	96,280
March	189,420	149,079	124,558
April	155,011*	98,802	110,783
May	192,319*	116,975	126,237
June	266,612*	96,952	125,835
July	265,771	126,255	152,481
Totals ...	1,306,144	827,245	843,752

SHIPMENTS			
January ...	135,253	152,746	92,578
February ..	129,628	145,879	88,626
March	156,781	185,885	115,031
April	164,440*	179,206	123,650
May	168,113*	171,101	123,225
June	172,096*	172,260	129,969
July	132,367	147,960	127,422
Totals ...	1,058,678	1,155,037	800,501

Tonnage available for fabrication within the next four months			
	684,538	605,426	369,892

*Revised

Fabricated steel awards this week included the following:

- 950 Tons, Philadelphia, building for Electric Storage Battery Co., to Bethlehem Steel Co., Bethlehem.
- 925 Tons, various locations, standard buildings, Luria Engineering Corp., to Bethlehem Steel Co., Bethlehem.
- 535 Tons, Birmingham, Ala., Avenue F

- Underpass, for Alabama Highway Department, through W. C. Howton, Contractor, to Virginia Bridge Company, Birmingham.
- 110 Tons, Bronx, N. Y., Jewish Center of Highbridge, to Grand Iron Works.
- 100 Tons, Knox County, Tennessee, bridge, Tennessee Highway Department, to Virginia Bridge Company, Birmingham.

Fabricated steel inquiries this week included the following:

- 3000 Tons, Landover, Md. warehouse for Safeway Stores, through Turner Construction Co., Philadelphia, due Sept. 1.
- 2800 Tons, Essex County, N. J., New Jersey Turnpike Authority, contract 43, six bridges, due Sept. 8.
- 558 Tons, Indiana County, Pa., Construction of aggregate base, concrete structures, bridges, and grading. Secretary of Highways, Harrisburg, Pa. Bids due Sept. 8.
- 550 Tons, Indiana County, Pa., bridge, Pennsylvania Dept. of Highways, due Sept. 7.
- 300 Tons, Scranton, Pa., four buildings for Marywood College, due Sept. 6.
- 115 Tons, Somerset County, Pa., Pennsylvania Dept. of Highways, bridge No. 2, due Sept. 15.
- 100 Tons, Philadelphia, warehouse for Pennsylvania Sugar Co., due Sept. 1.
- 100 Tons, Allegheny County, Pa., railroad overpass, Pennsylvania Dept. of Highways, due Sept. 8.

Reinforcing bar awards this week included the following:

- 450 Tons, Dayton, Frigidaire Div. GMC, to U. S. Steel Supply Corp., Chicago.
- 370 Tons, Oshkosh, Wis., Winnebago Asylum, to Cook and Brown Co., Oshkosh, Wis.
- 250 Tons, Appleton, Wis., Society for Aid to Lutherans, to U. S. Steel Supply Corp., Chicago.
- 250 Tons, West Lafayette, Ind., Chemistry Building, Purdue University, to Hugh J. Baker and Co., Indianapolis.
- 240 Tons, West Lafayette, Ind., Life Science Building, Purdue University, to Hugh J. Baker and Co., Indianapolis.
- 100 Tons, Broadview, Ill., International Harvester Co., to Joseph T. Ryerson and Son, Chicago.
- 240 Tons, Chicago, American Brass Co. building to Ceco Steel Products Co., Chicago.
- 230 Tons, Chicago, processing plant for H. C. Christians Co., to Joseph T. Ryerson and Son, Chicago.

Reinforcing bar inquiries this week included the following:

- 995 Tons, Chicago, National Biscuit Co.
- 485 Tons, West Lafayette, Ind., men's dormitory, Purdue U.
- 214 Tons, Indiana County, Pa., Construction of aggregate base, concrete structures, bridges, and grading. Secretary of Highways, Harrisburg, Pa. Bids due Sept. 8.
- 200 Tons, Minneapolis, City of Minneapolis.
- 185 Tons, Cleveland, docks for Nickel Plate Development Co.
- 100 Tons, Pittsburgh, School of Industrial Administration, Carnegie Institute of Technology.

Building Awards Top Record

New York—July construction contracts totaled \$1,420,181,000 in the 37 states east of the Rocky Mountains. According to F. W. Dodge Corp., this exceeded by 5 pct the previous all-time monthly record set this past April.

CENTRIFUGALLY CAST



- LINERS
- RINGS
- ROLLS
- SLEEVES
- BUSHINGS
- etc....
- in bronze alloys

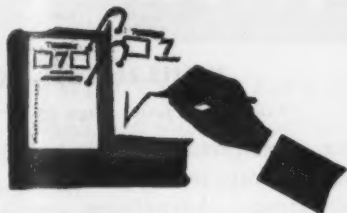
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• News of Industry •

Dates to Remember



Sept. 5-9—National Chemical Exposition, Chicago, Coliseum, Chicago. American Chemical Society, Chicago Section headquarters are at 86 E. Randolph St., Chicago.

Sept. 12-14—Society of Automotive Engineers, tractor meeting, Hotel Schroeder, Milwaukee. Society headquarters are at 29 W. 39th St., New York.

Sept. 13-15—National Petroleum Assn., annual meeting, Hotel Traymore, Atlantic City, N. J. Association headquarters are in the Munsey Bldg., Washington.

Sept. 18-22—Instrument Society of America, conference and exhibit, Memorial Auditorium, Buffalo. Society headquarters are at 921 Ridge Ave., Pittsburgh.

Sept. 19-21—American Society of Mechanical Engineers, fall meeting, Hotel Sheraton, Worcester. Society headquarters are at 29 W. 39th St., New York.

Sept. 23-26—Packaging Machinery Manufacturers Institute, annual meeting, Homestead, Hot Springs, Va. Institute headquarters are at 342 Madison Ave., New York.

Sept. 26-29—Assn. of Iron & Steel Engineers, exposition and annual convention, Public Auditorium, Cleveland. Association headquarters are in the Empire Bldg., Pittsburgh.

Sept. 27-29—National Metals Trades Assn., 51st annual convention, Hotel Commodore, New York. Association headquarters are at 122 S. Michigan Ave., Chicago.

Sept. 27-30—Society of Automotive Engineers, aeronautic meeting and engineering display, Biltmore Hotel, Los Angeles. Society headquarters are at 29 W. 39th St., New York.

Oct. 6-8—National Assn. of Waste Material Dealers, fall meeting, Hotel Traymore, Atlantic City, N. J. Association headquarters are in the Times Bldg., New York.

Oct. 10-12—Society of Industrial Packaging & Materials Handling Engineers, exposition, Convention Hall, Philadelphia. Society headquarters are at 20 W. Jackson Blvd., Chicago.

Oct. 12-13—Gray Iron Founders' Society, annual meeting, Netherlands Plaza Hotel, Cincinnati. Society headquarters are at 210 National City-E. 6th Bldg., Cleveland.

Oct. 16-18—Society of Automotive Engineers, transportation meeting, Hotel Statler, New York. Society headquarters are at 29 W. 39th St., New York.

Oct. 23-25—American Gear Manufacturers Assn., semiannual meeting, Edgewater Beach Hotel, Chicago. Association headquarters are in the Empire Bldg., Pittsburgh.

Oct. 23-26—American Institute of Steel Construction, annual meeting, Shamrock Hotel, Houston. Institute headquarters are at 101 Park Ave., New York.

Oct. 23-27—National Metal Congress & Exposition, International Amphitheater, Chicago. American Society for Metals headquarters are at 7301 Euclid Ave., Cleveland.

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Plant—Pittsburgh, Pa.

Follansbee Steel Warehouse—Pittsburgh, Pa.

Subsidiary, N. Y., and Fairfield, Conn.

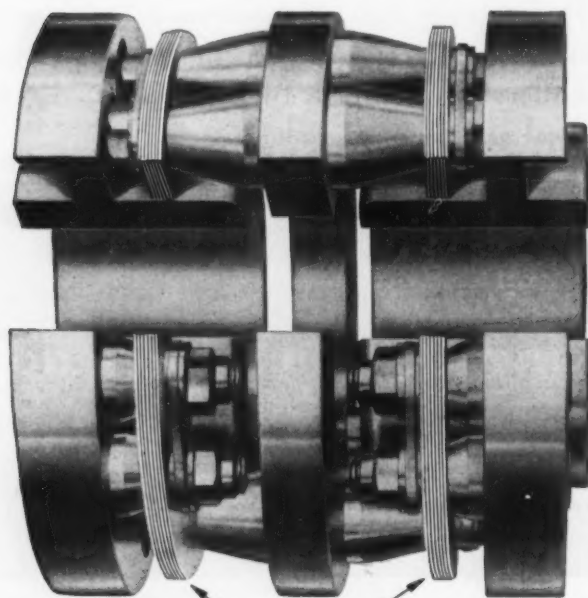
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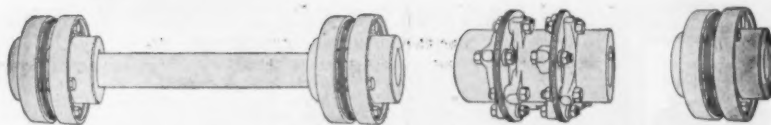
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FREE

PUBLICATIONS

Continued from Page 32

ing a marketable product of low grade scrap, reclaims all metal for remelting. Advantages are fully described, and a sectional drawing shows operation of the mill. *Dreisbach Engineering Corp.*

For free copy insert No. 10 on postcard, p. 33.

Bulk Material Handling

The Hough model HE ½ cu yd capacity Payloader, for excavating, earth moving and bulk material handling, is described in a new 6-p. illustrated folder. Versatility and operation features are pointed up in a series of photos showing actual use in field. The machine features four speeds forward and four in reverse, automatic tip-back bucket and hydraulic bucket control. *Frank G. Hough Co.*

For free copy insert No. 11 on postcard, p. 33.

Precision Lapping

How the Lapmaster produces automatic precision lapping of all materials in any production quantity is explained in a new 16-p. booklet. Operation, efficiency, specifications and design features are shown, along with typical applications of various models and sizes. One section deals with special attachments and accessories, and special lapping compounds and vehicles are discussed. *Crane Packing Co., Lapmaster Div.*

For free copy insert No. 12 on postcard, p. 33.

Engineer-Builder

The slogan, "Wellman will build it!" is graphically portrayed in an 18-p. booklet showing some of the many engineering projects, special machinery and heavy material handling equipment designed and constructed by this engineering firm. Examples shown include such fields as the iron and steel industry, shipyards, dry docks, chemical industry, and bulk material handling equipment used at railroad terminals for loading and unloading lake and ocean vessels, as well as cranes for general cargo shipments. *Wellman Engineering Co.*

For free copy insert No. 13 on postcard, p. 33.

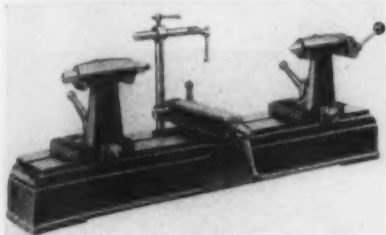
Resume Your Reading on Page 33

NEW

PRODUCTION IDEAS

Continued from Page 36

separately, this Delta-Milwaukee bench center is a self-contained unit. The bracket can be quickly and firmly locked on the bed and the arm for holding the indicator



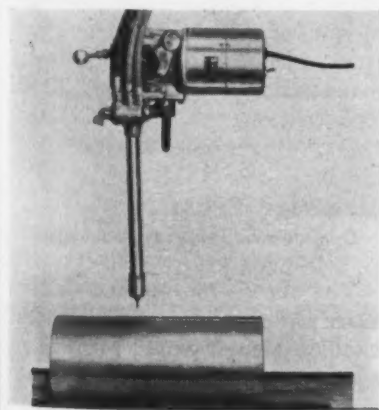
can be positioned vertically or horizontally. Precision-bored head and tail stocks are identical castings and interchangeable without variation in accuracy. Delta Power Tool Div., Rockwell Mfg. Co.

For more data insert No. 28 on postcard, p. 33.

Brazing-Soldering Method

Brazing-soldering wire fed at synchronized speed with workpiece.

A new brazing or soldering method is used in connection with a suitable conveyer system. A so-called gun feeds brazing or soldering wire at some fixed speed that



synchronizes with the speed of the workpiece being processed. Speed of the wire can be varied, but once adjusted, maintains that speed indefinitely, and brazing and soldering becomes a continuous operation. The gun is a self-contained

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SHOT and GRIT



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1 MORE ECONOMICAL . . . "Certified" Samson Shot and Angular Grit save you money because they last longer . . . give you top-efficiency blast cleaning at lowest cost. Each grain is a solid homogeneous mass that wears slowly . . . can be used over and over.

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CRUSHED STEEL CO.**
PITTSBURGH, PENNA.

**STEEL SHOT
AND GRIT CO.**
BOSTON, MASS.

Why Wyandotte bought a Pacific Coast plant—and what it means to you

On June 15, Wyandotte Chemicals Corporation announced the purchase of the Pacific Chemical plant of the American-Marietta Company of Los Angeles, California. The plant is now being revamped as a Pacific Coast manufacturing unit for Wyandotte products. Sales and plant personnel are being absorbed by Wyandotte.

WHY

For well over a quarter of a century there have been Wyandotte branches in Los Angeles, San Francisco and Seattle. They have been part of a rapidly growing industrial market. This new manufacturing plant will allow them to better serve their Coastal and Western customers.

WHAT IT MEANS TO YOU

If you are located west of the Continental Divide, you will get the advantages that come naturally from being close to the source of supply. If you have been a user of Pacific Chemical's products, you will have made available to you the Wyandotte Research and Technical Service staffs, numbering nearly 200 persons. If you buy cleaners for aircraft, automobiles, railroads or any metal finishing operation, you will benefit from the exchange of technical experience that is now taking place.

But in our eyes the great significance of this move is as evidence of Wyandotte's steady and continued growth in serving your industry.

THE WYANDOTTE LINE — products for burnishing and burring, vat, electro, steam gun, washing machine and emulsion cleaning, paint stripping, acid pickling, related surface treatments and spray booth compounds. An all-purpose floor absorbent: Zorball — in fact, specialized products for every cleaning need.

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WYANDOTTE, MICHIGAN
SERVICE REPRESENTATIVES IN 88 CITIES



NEW PRODUCTION IDEAS

Continued

unit, powered with a constant speed induction motor, and once put in operation is practically automatic. *Metallizing Co. of America.*

For more data insert No. 29 on postcard, p. 33.

Portable Magnaflux

Supplies ac or dc magnetization for maintenance inspection.

The new, portable general purpose Magnaflux unit, the KH-05, requires 110 v ac supply line to give ac or dc magnetization. 500



magnetizing amps are available. Half-wave rectified dc has been developed for location of subsurface defects and cracks on the inner surface of cylindrical parts. Equipment includes powder, materials, magnetizing cable, and Either-end connectors. *Magnaflux Corp.*

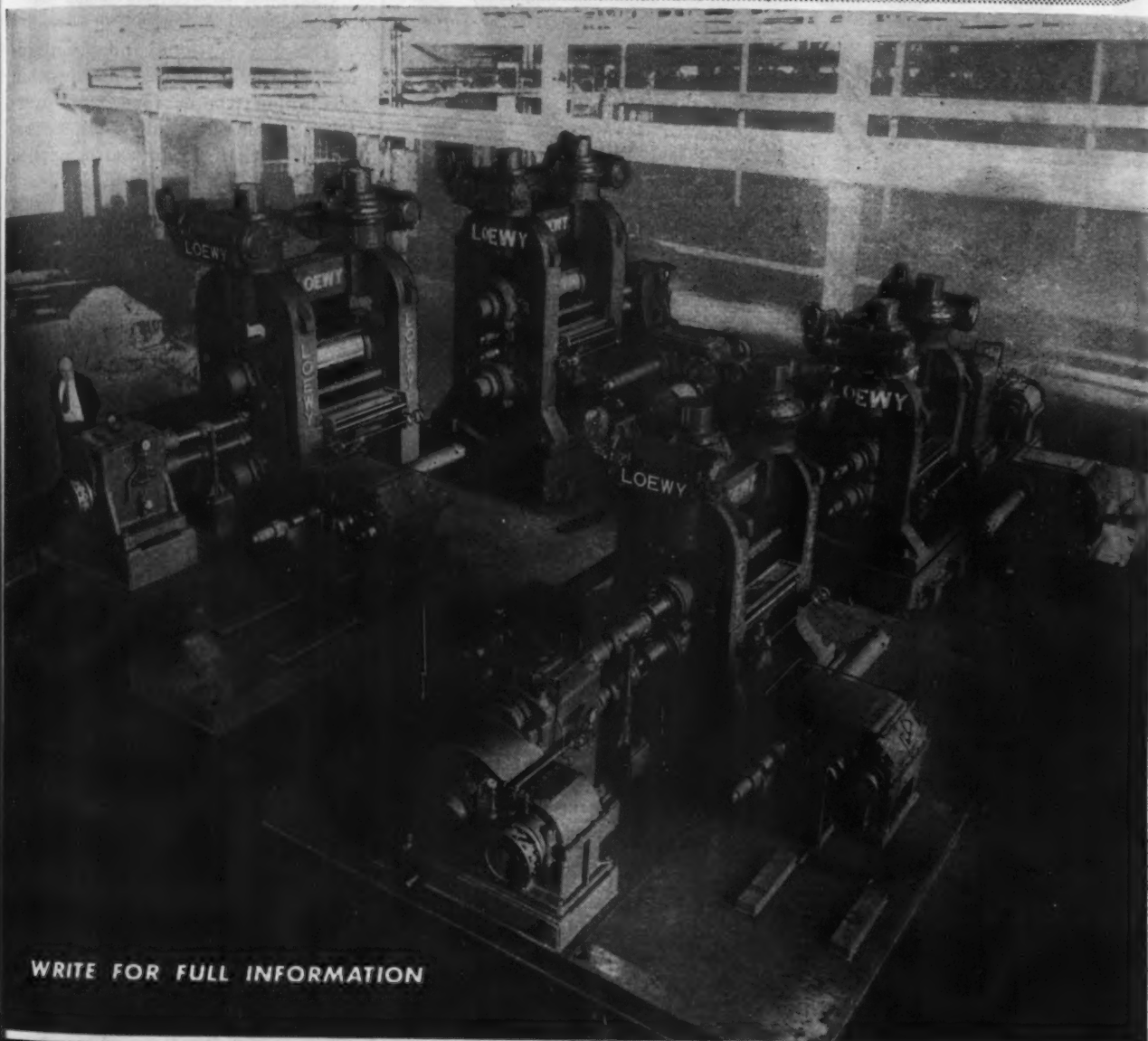
For more data insert No. 30 on postcard, p. 33.

Drawing Press

Can mass produce at economical rate, heavy gage sheet parts.

The new 750/500-ton Fastraverse sheet metal drawing press handles deep drawing, forming and blanking operations on both heavy and light gage stock. The press is equipped with a 250-ton blankholder and a 200-ton hydraulic die cushion with a 36-in. stroke. Die cushion platen measures 47x47 in. The press will draw and lift out a part 36 in. deep. Features include adjustable blankholder pressure at each of the four corners of the

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Your die costs go down . . . and you can raise the feed . . . using T-J Die Sinking Milling Cutters! Because of their advanced design, these cutters help you get the utmost in *accuracy, speed and efficiency* from your machines. T-J builds these sturdy cutters from a standard, extremely high grade steel . . . properly machined . . . scientifically heat-treated and accurately ground. They're *extra rugged* . . . hold a sharp edge longer . . . less breakage! Wide range of T-J standard styles and sizes saves time and money for you! Send for new catalog 150. The Tomkins-Johnson Co., Jackson, Michigan.

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DIE SINKING MILLING CUTTERS

NEW PRODUCTION IDEAS

Continued

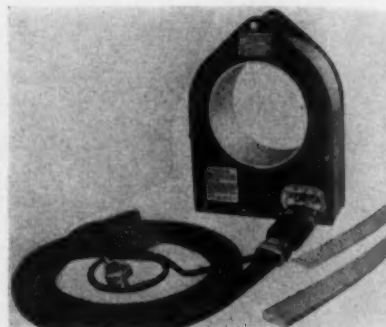
slide; rapid advance to work with automatic slow-down as die contacts work; automatic press cycle controlled by pushbuttons; automatic press reversal. *Hydraulic Press Mfg. Co.*

For more data insert No. 31 on postcard, p. 31.

Induction Pinion Heater

Generates heat within pinion for removal in one to two min.

The new National induction pinion heater generates heat within the pinion; the surface is not overheated and the pinion can be removed with light pressure, applied



by wedges or a pinion puller. The heater is easily operated by one man. It can be used wherever there is a source of 440 v, 300 amp, 60 cycle power. To replace a pinion on the shaft the same induction heater may be used to expand it. *National Electrical Coil Co.*

For more data insert No. 32 on postcard, p. 31.

Mobile Truck Crane

Can be installed on any type truck and used with any make winch.

Hydra-Lift is a compact, hydraulic truck crane that takes up only 35 in. behind the cab allowing full use of truck bed. Operation



is simple; the truck driver can control all swinging and lifting from his cab with excellent visibility. The boom, which swings in a 180° arc with its speed controlled by the driver, can be used for

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Job-Fitted
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SERVICES

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**Detroit Steel Strip is Strip Steel
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Standard or production sizes
or cut to actual working
dimensions

PRIMES

or **COST-SAVING SECONDS****

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***Reliance Job-Fitting Methods
apply to seconds as
well as primes*

Warehouses play ball . . .

They play their hearts out on every small steel user's team in the country to keep these little fellows running. In fact, these minor leaguers might not be in the game at all if they couldn't draw on warehouses.

Warehouses show up in big league dugouts too, though not often in the regular supplier line-up with the mainstay steelmakers. They just haven't got enough of what it takes. But as pinch-hitters, in the clutches, they're stars.

When production runs count, warehouses score, saving many a decisive game for major-user teams.



DEPENDABLE DAN
OUR CUSTOMERS' MAN

Have you an opening on your team for sheet and strip steel pinch-hitters? Give us a try-out. We'll gladly go to bat for you, inventory permitting.

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For Immediate Action Call The Nearest Reliance Plant or Office:

DETROIT STEEL CORPORATION

PRODUCERS OF

Coke and Coal Chemicals • Pig Iron • Ingots
Slabs • Sheet Bars • Billets • Wire Rods
Manufacturers' Wire • Merchant Wire Products
Cold Rolled Strip Steel

GENERAL OFFICES
DETROIT 9, MICHIGAN

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RELIANCE STEEL DIVISION

Processors and Distributors **JOB-FITTED** Sheet and Strip Steel

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ARMSTRONG Drop Forged EYE BOLTS



They'll Carry the Load

Specify ARMSTRONG Drop Forged Eye Bolts for extra strength — correctly engineered proportions, forged-in quality, uniformity of design in all sizes and the best mild steel, heat treated to increase tensile strength. Built to tool standards, not hammered out as "tonnage" forgings, they always carry their load safely.

Stocked by Armstrong distributors with or without shoulders, threaded or as blanks in 16 sizes (openings from 3/4" to 4" i.d.).

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ARMSTRONG BROS. TOOL CO.
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NEW PRODUCTION IDEAS

Continued

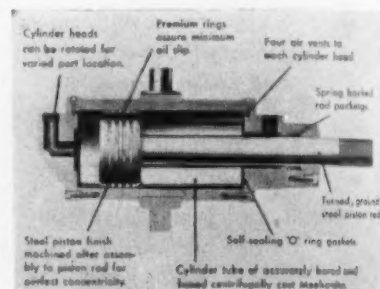
straightline pull, and in full upright position, can load and unload off the truck bed. Made of heavy, seamless steel tubing it can be telescoped from 11 to 16 or 20 ft. Capacity of the Hydra-Lift varies from 6000 lb with the boom at 11 ft to 2500 lb with the boom at 20 ft. *Pitman Mfg. Co.*

For more data insert No. 33 on postcard, p. 31.

Hydraulic Cylinder

Pressures to 1500 psi for push, pull, lift, press, control power.

The cylinder illustrated is Model HP-17, one of a complete line of Hanna high pressure hydraulic



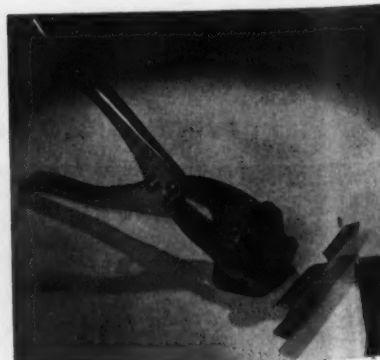
cylinders meeting J.I.C. standards. Eight standard mounting styles are available, with units to meet every mounting requirement. *Hanna Engineering Works.*

For more data insert No. 34 on postcard, p. 31.

Angle Cutter

Cuts angles in metal moldings, aluminum, 1/32-in. thick mild steel.

The Metalmitre is a miniature die operated by hand. Different tool steel dies provide different



angles of cut. Stainless steel handles resist corrosion from perspiration. *Metalmitre, Inc.*

For more data insert No. 35 on postcard, p. 31.

Resume Your Reading on Page 37

MARKET

IRON AGE
FOUNDED 1855
MARKETS & PRICES

Briefs and Bulletins

big order—One of the biggest government orders for sheet steel so far will be given out soon when bids are to be taken by the Army Quartermaster Corps in Chicago. Bids call for 2,400,000 cold-rolled sheets, all sizes 14% in. by 36 7/16 in. Tonnage is estimated at 6,666 tons. The sheets will be used in 5-gal. gasoline cans.

New York tonnage—Steel consumers have added a new phrase to their vocabulary—"New York tonnage." This refers to tonnage quoted in gray market deals where it is suspected that the steel does not really exist, or that several digits have been added to the actual figure. Some gray market deals have exploded when the prospective victim demanded to meet personally with the other principal.

step up—Freight car builders are boosting output. One builder who has enough steel to take care of present orders is expecting to double its production rate at most of its plants by the end of the year. They feel they will get the steel either by putting more pressure on the mills or through government allocation.

price climb—Jessop Steel Co. advanced the base price of 20 pct stainless clad plate, Type 304, by 1½¢ per lb, effective Aug. 25. The new price is 28¢. The firm also increased the price of 10 pct clad by 1¢ per lb and 5 pct was raised ¾¢, 15 pct by 1¼¢, 25 pct, 1¾¢, and 30-50 pct, 2¢.

essentials—One small producer of stainless steel is refusing to take orders for stainless to be used in decorative items but are trying to supply it to more vital industries such as food processing, heavy chemicals and the oil industry for use in catalytic cracking units.

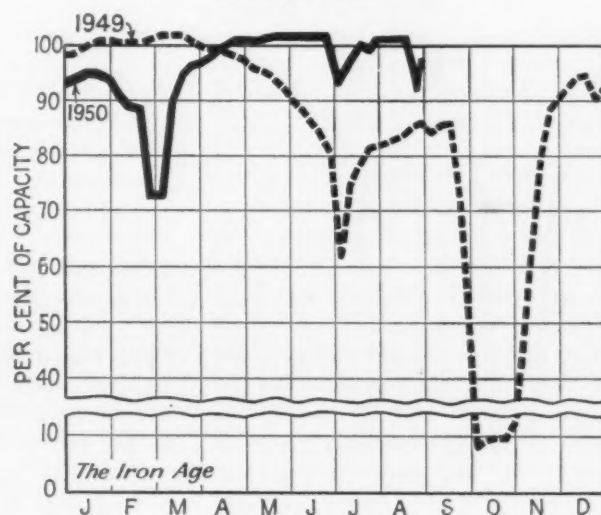
hardware—The shortage of stainless steel is being reflected in hardware items. Some fixtures which had been plentiful are now reported in short supply. But producers report no cutback in deliveries.

soda ash shortage—Steel mills report that supply of soda ash is growing more critical. Strikes in plants of Semet-Solvay Co. and Diamond Alkali Co. since June and July, respectively, have hit 60 pct of the industry's productive capacity. Caustic soda also is short. Gray market price of soda ash is said to be \$3.50 per 100 lb, as compared with regular market price of \$1.35 in bags and \$1.10 in bulk. Chemical is used extensively in mill water treatment plants.

new problem—Some purchasing agents who are overstating their requirements for military purposes constitute another problem for the mills. When the tonnage asked for raises a question, steel people have been checking with the Quartermaster Corps and the tonnage required is estimated on this information.

delivery on stainless—A stainless sheet producer is now quoting February delivery. Orders booked last month by this firm were more than triple its capacity to produce.

Steel Operations**



District Operating Rates—Per Cent of Capacity**

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	Cleveland	Buffalo	Wheeling	South	Detroit	West	Ohio River	St. Louis	East	Aggregate
Aug. 20	98.0*	75.5*	93.0	92.0	68.0	104.0	101.0	104.0	107.0*	109.0	88.5	90.0	82.5	91.0*
Aug. 27	99.0	92.0	94.0	92.0	80.0	104.0	102.0	104.0	105.0	110.0	89.0	89.0	61.0	97.5

*Revised.
** Steel operations for the first half of 1950 are based on annual capacity of 99,392,800 net tons. Beginning July 1, 1950, operations are based on new annual capacity of 100,583,500 net tons.

Nonferrous Metals outlook

Market Activities

Fabricators set up to operate on split price copper market
... No drop in mill products volume ... Aluminum ingot prices
hold ... Lead rise seen very soon.



by JOHN ANTHONY

New York—Having given up hope for a suspension of the 2¢ per lb copper tariff in the near future, brass and wire mills are getting ready to do business for some time on the basis of a split copper market. Last week another mill, Scovill Mfg. Co. followed the lead of American Brass Co. and Anaconda Wire & Cable Co. in charging the cost of the duty to the account of the buyer. Other mills who require foreign copper must take this action soon for there is no margin in the business to permit absorption of this cost.

Tool Basis Conversion

Conversion of copper scrap on a toll basis is growing rapidly as buyers find it increasingly difficult to get enough primary metal to maintain operations. Copper and brass scrap prices are rising rapidly for toll arrangements. Copper costs of 28½¢ and 30¢ per lb applied to conversion deals reported last week. But scrap is growing scarcer and there is some question whether even these high prices could be duplicated. Meanwhile re-

finers and ingot makers are adhering to lower buying prices but getting very little tonnage.

The brass mills have not made any changes in mill products prices to cover the rising cost of metals other than copper. The last general price change was made on June 8, when tin was 78¢ and lead 12¢. The rising price of tin is an important cost factor in bronze products, especially in manganese bronze.

Mills that are now applying the duty on copper for the account of the buyer have not suffered any loss of volume on this account, even though prices are higher than the competition. Incoming orders are heavy. But operations are being reduced due to shortages of copper and zinc. Early this week only one mill was buying return scrap at the 24½¢ copper level. But it is only a question of time before others must follow or lose scrap to the conversion market.

Some of the tension has gone out of the aluminum scrap and ingots markets. Last week for the first time in over a month there

were no sharp increases in aluminum prices. But scrap offerings are limited and this factor dominates the market.

Lead buyers are pushing to get tonnage regardless of the recent increases. The feeling is that buyers are trying to build up inventories rather than order for immediate needs. Some factors feel that another price rise can be expected some time next week. Foreign lead is being bought at prices above the domestic market. The battery smelting charge is down to \$25.00 a ton, reported to be below the cost of smelting.

Zinc at Premium

Zinc consumers are desperately short of metal. There are reports of the payment of premiums for metal and high prices for scrap. Exports of zinc are reported on the basis of 17¢ per lb. The Joplin ore price is holding at \$99.00 a ton.

Buyers are exerting considerable pressure on the cadmium market. The price of \$2.15 is being held by producers, but reports indicate that some lots have been sold at \$2.50 and \$3.00 a lb.

Last week the tin market fluctuated sharply, but the general trend was downward. The domestic market was quiet. Early this week the market for prompt tin was quotable at \$1.02.

NONFERROUS METALS PRICES

	Aug. 23	Aug. 24	Aug. 25	Aug. 26	Aug. 28	Aug. 29
Copper, electro, Conn.	22.50-	22.50-	22.50-	22.50-	22.50-	22.50-
	24.50	24.50	24.50	24.50	24.50	24.50
Copper, Lake, delivered ...	24.625	24.625	24.625	24.625	24.625	24.625
Tin, Straits, New York	\$1.025	\$1.04	\$1.045	.....	\$1.02	\$1.03*
Zinc, East St. Louis	15.00	15.00	15.00	15.00	15.00	15.00
Lead, St. Louis	13.80	13.80	13.80	13.80	13.80	13.80

Note: Quotations are going prices.

*Tentative.

MILL PRODUCTS

Aluminum

(Base prices, cents per pound, base 30,000 lb, f.o.b. shipping point, freight allowed)

Flat Sheet: 0.188 in., 2S, 3S, 27.4¢; 4S, 61S-O, 29.3¢; 62S, 31.4¢; 24S-O, 24S-OAL, 30.3¢; 75S-O, 75S-OAL, 36.8¢; 0.081 in., 2S, 2S, 28.4¢; 4S, 61S-O, 30.7¢; 62S, 32.8¢; 24S-O, 24S-OAL, 31.4¢; 75S-O, 75S-OAL, 38.5¢; 0.032 in., 2S, 3S, 30.0¢; 4S, 61S-O, 34.0¢; 62S, 36.7¢; 24S-O, 24S-OAL, 38.4¢; 75S-O, 75S-OAL, 48.1¢.

Plate: 1/4 in., and heavier: 2S, 3S, F, 24.3¢; 4S-F, 27¢; 62S-F, 28.1¢; 61S-O, 27.6¢; 24S-F, 24S-FAL, 28.1¢; 75S-F, 75S-FAL, 34.9¢.

Extruded Solid Shapes: Shape factors 1 to 4, 33.6¢ to 67¢; 11 to 13, 34.3¢ to 79¢; 23 to 25, 36.3¢ to 110.8¢; 35 to 37, 43.3¢ to 116.6¢.

Red Rolled: 1.5 to 4.5 in., 2S-F, 3S-F, 34.5¢ to 31¢; Cold-finished, 0.375 to 3 in., 2S, 3S, 37¢ to 32.5¢.

Screw Machine Stock: Rounds, 11S-T3, R317-T4, 1/2 to 1 1/2 in., 49.5¢ to 38.5¢; 3/4 to 1 1/2 in., 58¢ to 36¢; 1 1/2 to 2 in., 56¢ to 38¢; 17S-T4 lower by 1¢ per lb. Base 5000 lb.

Drawn Wire: Coiled, 0.051 to 0.374 in.: 2S, 36.5¢ to 27¢; 62S, 44.5¢ to 32.5¢; 66S, 47.5¢ to 39¢; 17S-T4, 50.5¢ to 35¢; 61S-T4, 45¢ to 34.5¢; 75S-T4, 76.5¢ to 55.5¢.

Extruded Tubing, Rounds: 63S-T5; OD in in.: 1 1/4 to 2, 33.5¢ to 49¢; 2 to 4, 30.5¢ to 41.5¢; 4 to 6, 31¢ to 37.5¢; 6 to 9, 31.5¢ to 39.5¢.

Roofing Sheet, Flat: 0.019 in. x 28 in., per sheet, 72 in., \$1.005; 96 in., \$1.344; 120 in., \$1.679; 144 in., \$2.017. Gage 0.024 in. x 28 in., 72 in., \$1.224; 96 in., \$1.633; 120 in., \$2.042; 144 in., \$2.451. Coiled Sheet: 0.019 in. x 28 in., 24.7¢ per lb; 0.024 in. x 28 in., 23.7¢ per lb.

Magnesium

(Cents per lb, f.o.b. mill, freight allowed)

Sheet and Plate: M-O, FS-O, 1/4 in., 58¢ to 60¢; 3/16 in., 60¢ to 62¢; 1/2 in., 62¢ to 64¢; B & S gage 10, 63¢ to 65¢; 12, 67¢ to 69¢; 14, 73¢ to 75¢; 16, 80¢ to 85¢; 18, 88¢ to 93¢; 20, 91.00 to \$1.05; 22, \$1.22-\$1.31; 24, \$1.62-\$1.75.

Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, FS, diam in., 1/4 in. to 0.311, 66¢; 1/2 in. to 3/4, 50¢; 1 1/4 to 1.749, 47¢; 2 1/4 to 5 in., 48¢. Other alloys higher. Base: Up to 1/4 in., diam, 10,000 lb; 1/4 in. to 1 1/4 in., 20,000 lb; 1 1/4 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M, FS, in weight per ft. for perimeters of less than size indicated, 0.10 to 0.11 lb per ft. per. up to 3.5 in., 59.5¢; 0.22 to 0.25 lb per ft. per. up to 5.9 in., 55¢; 0.50 to 0.59 lb per ft. per. up to 8.6 in., 50.5¢; 1.8 to 2.59 lb per ft. per. up to 19.5 in., 47.5¢; 4 to 6 lb per ft. per. up to 28 in., 46.5¢. Other alloys higher. Base, in weight per ft. of shape: Up to 1/4 in., 10,000 lb; 1/4 in. to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, FS, wall thickness, outside diam, in., 0.049 to 0.067, 1/4 in. to 5/16, \$1.40; 5/16 to 3/4, \$1.26; 3/4 to 1, \$1.10; 1 to 2 in., 76¢; 0.165 to 0.219, 3/4 to 1, 61¢; 1 to 2 in., 57¢; 3 to 4 in., 56¢. Other alloys higher. Base, OD in in.: Up to 1 1/4 in., 10,000 lb; 1 1/4 in. to 3 in., 20,000 lb; 3 in. and larger, 30,000 lb.

Nickel and Monel

(Base prices, cents per lb, f.o.b. mill)

Sheets, cold-rolled 69 53
Strip, cold-rolled 75 56
Rods and bars 65 51
Angles, hot-rolled 65 51
Plates 67 52
Seamless tubes 98 86
Shot and blocks 46 46

Copper, Brass, Bronze

(Cents per lb, freight prepaid on 200 lb)

	Sheets	Rods	Extruded Shapes
Copper	37.43		37.03
Copper, h-r		33.28	
Copper, drawn		34.53	
Low brass	35.52	35.21	
Yellow brass	34.19	33.88	
Red brass	35.96	35.65	
Naval brass	38.90	32.96	34.22
Leaded brass		28.54	32.65
Com'l bronze	36.93	36.63	
Manganese bronze			
Phosphor bronze	42.40	36.27	37.85
Muntz metal	37.13	32.69	34.94
Everdur, Hercu-loy, Olym- pic, etc.	42.05	40.99	
Nickel silver			
10 pct	45.48	47.74	
Arch. bronze			32.65

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed 17.50
Aluminum pig 16.50
Antimony, American, Laredo, Tex. 24.50
Beryllium metal, 95%, lumps, beads, \$95.00
Beryllium copper, 2.75-4.25% Be, dollars per lb contained Be \$30.00
Beryllium aluminum 5% Be, dollars per lb contained Be \$65.00
Blamuth, ton lots \$2.00
Cadmium, delf \$2.15
Cobalt, 97-99% (per lb) \$1.80 to \$1.87
Copper, electro, Conn. Valley 22.50 to 24.50
Copper, Lake, delivered 24.625
Gold, U. S. Treas., dollars per oz. \$35.00
Indium, 99.8%, dollars per troy oz. \$2.25
Iridium, dollars per troy oz. \$160
Lead, St. Louis 13.80
Lead, New York 14.00
Magnesium, 99.8+%, f.o.b. Freeport Tex., 10,000 lb 22.50
Magnesium, sticks, 100 to 500 lb 39.00¢ to 41.00¢
Mercury, dollars per 76-lb flask f.o.b. New York \$79 to \$80
Nickel, electro, f.o.b. New York 51.22
Nickel oxide sinter, f.o.b. Copper Cliff, Ont., contained nickel 44.25
Palladium, dollars per troy oz. \$24.00
Platinum, dollars per troy oz. \$74 to \$77
Silver, New York, cents per oz. 72.75
Tin, New York \$1.03
Zinc, East St. Louis 15.00
Zinc, New York 15.72
Zirconium copper, 50 pct \$6.20

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot
No. 115 25.50
No. 120 25.00
No. 123 24.50
80-10-10 ingot
No. 305 29.50
No. 315 27.00
88-10-2 ingot
No. 210 38.00
No. 215 35.00
No. 245 29.50
Yellow ingot
No. 405 21.75
Manganese bronze
No. 421 27.00

Aluminum Ingot

(Cents per lb, 30,000 lb lots)

95-5 aluminum-silicon alloys
0.30 copper, max. 26.50-27.00
0.60 copper, max. 26.00-26.50
Piston alloys (No. 122 type) 25.00-25.50
No. 12 aluminum (No. 2 grade) 24.50-25.00
108 alloy 25.00-25.50
195 alloy 26.00-26.50
13 alloy 26.50-27.00
AXS-679 25.00-25.50

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1-95-97 1/2% 26.00-26.50
Grade 2-92-95% 25.00-25.50
Grade 3-90-92% 24.00-24.50
Grade 4-85-90% 23.50-24.00

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, in 500 lb lots)

Copper
Cast, oval, 15 in. or longer 39 1/4
Electrodeposited 33 1/4
Rolled, oval, straight, delivered 36.59
Forged ball anodes 41
Brass, 80-20
Cast, oval, 15 in. or longer 34 1/4
Zinc, oval 24
Ball anodes 23
Nickel 99 pct plus
Cast 68.00
Rolled, depolarized 69.00
Cadmium \$2.30
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn. 79 1/4

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum 52.15
Copper sulfate, 99.5 crystals, bbl. 12.85
Nickel salts, single or double, 4-100 lb bags, frt allowed 20 1/4
Nickel chloride, 375 lb drum 27 1/4
Silver cyanide, 100 oz lots, per oz. 61 1/4
Sodium cyanide, 96 pct domestic 200 lb drums 19.25
Zinc cyanide, 100 lb drums 45.85

SCRAP METALS

Brass Mill Scrap

(Cents per pound; add 1/4¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turn- ings
Copper	21 1/4	20 1/4
Yellow brass	18 1/4	16 1/4
Red brass	19 1/4	19 1/4
Comm. bronze	20 1/4	19 1/4
Mang. bronze	17 1/4	16 1/4
Brass rod ends	17 1/4	17 1/4

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire 21.75
No. 2 copper wire 20.75
Light copper 19.75
Refinery brass 20.00
Radiators 15.00
*Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer)

No. 1 copper wire 21.75
No. 2 copper wire 20.75
Light copper 19.75
No. 1 composition 18.75-19.00
No. 1 comp turnings 18.50-18.75
Rolled brass 17.00
Brass pipe 18.00
Radiators 15.00
Heavy yellow brass 15.00

Aluminum

Mixed old cast 15.00
Mixed old clips 15.50
Mixed turnings, dry 14.00
Pots and pans 15.00
Low copper 16.25

Dealers' Scrap

(Dealers' buying prices, f.o.b. New York in cents per pound)

Copper and Brass
No. 1 heavy copper and wire 19 1/4-20
No. 2 heavy copper and wire 18 1/4-19
Light copper 17 1/4-18
Auto radiators (unsweated) 13 1/4-13 1/2
No. 1 composition 16 1/2-17
No. 1 composition turnings 16-16 1/2
Clean red car boxes 14 1/4-15
Cocks and faucets 14 1/4-15
Mixed heavy yellow brass 11 1/4-11 1/2
Old rolled brass 12 1/4-13
Brass pipe 14 1/4-15
New soft brass clippings 15 1/4-16
Brass rod ends 13 1/4-14
No. 1 brass rod turnings 13 1/4-13 1/2

Aluminum

Alum. pistons and struts 8-8 1/2
Aluminum crankcases 10 1/4-11
2S aluminum clippings 13-13 1/2
Old sheet and utensils 10 1/4-11
Borings and turnings 7
Misc. cast aluminum 10 1/4-11
Dural clips (24S) 10 1/4-11

Zinc

New zinc clippings 10 1/4-11
Old zinc 8 1/4-8 1/2
Zinc routings 5 1/4-6
Old die-cast scrap 5 1/4-6

Nickel and Monel

Pure nickel clippings 38-41
Clean nickel turnings 35-38
Nickel anodes 38-41
Nickel rod ends 38-41
New Monel Clippings 17-21
Clean Monel turnings 15-17
Old sheet Monel 16-20
Inconel clippings 22-26
Nickel silver clippings, mixed 9-10
Nickel silver turnings, mixed 6-7

Lead

Soft scrap, lead 11 1/4-12 1/4
Battery plates (dry) 6 1/4-7

Magnesium

Segregated solids 9-10
Castings 5 1/4-6 1/4

Miscellaneous

Block tin 78-80
No. 1 pewter 58-60
No. 1 auto babbitt 50-52
Mixed common babbitt 12-12 1/2
Solder joints 15 1/4-16
Siphon tops 46-48
Small foundry type 14 1/4-15
Monotype 13 1/4-14
Lino. and stereotype 12 1/4-13
Electrotype 11 1/4-12 1/2
New type shell cuttings 15-15 1/4
Hand picked type shells 6-6 1/4
Lino. and stereo. dross 4 1/4-4 1/2
Electro. dross 2 1/4-3

MARKETS—PRICES—TRENDS



SCRAP

Iron & Steel

No New Buying as Mills Try to Hold Prices

Mill efforts to reduce scrap prices or at least to hold them have created some confusion in the various markets and have resulted in the dropping of prices at some centers. There is some feeling, however, that this is only a temporary condition and that the market will clarify itself in a week.

There has been some pickup in cast grades in southern and eastern markets and eastern prices for chemical borings are up \$4.00 to \$5.00 per ton on new buying by a major consumer. Railroad items are really getting hot in spots. Most notable item in line with this is the \$76.00 to \$78.00 per ton price on steel car axles in the St. Louis district.

The indications in Pittsburgh are that the mills are in a good position regarding scrap inventories, helping to explain the lack of mill buying in that district.

Conversion deals are continuing to show their inflating effect in some of the other centers, notably

Philadelphia. This was not representative of the market, as brokers were willing to sell No. 1 steel at \$39.00 a ton.

PITTSBURGH—In the absence of mill buying, the price of No. 1 heavy melting steel dropped \$2.00 on appraisal, with No. 1 bundles dropping \$4.00. Consumers successfully put up strong resistance to last week levels. Indications were that the majority of mills were comfortably situated inventory-wise. One mill was controlling shipments. No. 2 heavy melting was up 50¢ to \$38.00, top. Machine shop turnings also were stronger. Cast iron grades held firm.

CHICAGO—As yet there have been no official reports of any new mill buying in the Chicago area. The majority of brokers are offering \$40 and \$38 respectively for No. 1 and No. 2 heavy melting steel. Prices on openhearth grades in the Chicago area remain disproportionately low compared with prices reported in eastern districts. One major consumer of scrap in the area is reported to have decided not to pay more than \$40 per gross ton for No. 1 heavy melting industrial scrap for September.

PHILADELPHIA — Heavy melting grades were unchanged last week, except for No. 2 bundles which were up \$1.00. Brokers were willing to take tonnage at previous quotation levels, even though buying of specialty grades has been done at higher prices for conversion. Shoveling turnings were up \$1.00. Low phos grades were up \$1.00. Chemical borings are scarce and September buying is being done at \$5.00 higher. Rail special-

ties were up \$3.00. Cast grades were stronger, with advances of \$1.00 in machinery and carwheels, and an average of \$1.50 in yard cast.

NEW YORK—There is extreme price confusion in the market here this week. Openhearth grades are \$1.00 to \$1.50 higher and the turnings market is a bit stronger. Chemical borings showed a rise of \$3.00 to a range of \$34.00 to \$35.00 per gross ton on new buying. No. 1 machinery cast also went up 50¢ a ton. Movement of scrap is fair but certainly nothing to brag about.

DETROIT—The market here appears to have settled down into a tug-of-war between hold-the-line mill buyers and marginal mills and speculative interests who believe the underlying strength of the market justified today's prices—and perhaps even higher. While reports of mill thinking and withdrawal from the market by certain broker interests would indicate a downward price trend, there are persistent reports of limited buying of a few grades at the present levels. Lists closing here today, too late for publication this week, are expected to throw considerable light on the present badly confused price situation.

CLEVELAND—Efforts to bear the market early this week brought trading to a virtual halt here and in the Valley. On appraisal, brokers will sell tonnage at \$46.00, the last price paid. Mills, however, are either out of the market or offering \$44.00. Brokers have some orders for \$46.00 which will last possibly another 3 weeks, and are turning down offers of \$44.00. Net effect of this trifling may be to dampen the market temporarily, although there isn't much tonnage in the yards, which will be followed by a rebound to present price levels or higher. Key to the short term future will be closing of the railroad lists.

ST. LOUIS—Railroad lists are steadily commanding higher prices, which brokers are taking. There are virtually no dealer offerings. Foundry grades are in the greatest demand, and the sharply higher prices are for these items. Little if any scrap is coming into dealers' yards.

CINCINNATI—With mills offering \$41.00 to \$42.00 and brokers asking \$43.00 to \$44.00, the market has reached a temporary impasse. Facts are that brokers took orders last week at \$43.00 and there isn't much tonnage in the yards at \$44.00 or higher. Even with some district consumers out of the market, lower offers will probably go begging until brokers clean up their present paper. Foundry grades are strong and moving freely at quoted prices.

BOSTON—This market is now rather quiet and not much scrap is flowing. No. 1 steel and No. 1 bundles dropped back 50¢ per ton. Chemical borings rose \$4.00 a ton to a high of \$30.00 per ton on new buying by a major consumer, and the cast market brought itself more into line with the other scrap with increases of \$1.00 to \$2.00 in all cast grades.

BIRMINGHAM—Cast iron is in such great demand that if a tonnage could be offered it could command a large premium over the present prices. Openhearth scrap is not available in the district in any quantities because of shipments to the North. A shortage of gondola cars also is holding up some scrap that is available for shipping.

BUFFALO—An impasse prevailed in the scrap market during the week as leading mill consumers informed dealers that they will not go along with recently advanced prices. Dealers however claim the prices are in line with those being paid for unprocessed material moving into their yards. Dealers also feel that even higher prices will be reported if controls are not put into effect. Meanwhile heavy water shipments of scrap continue on by barge from the eastern coast via the canal.

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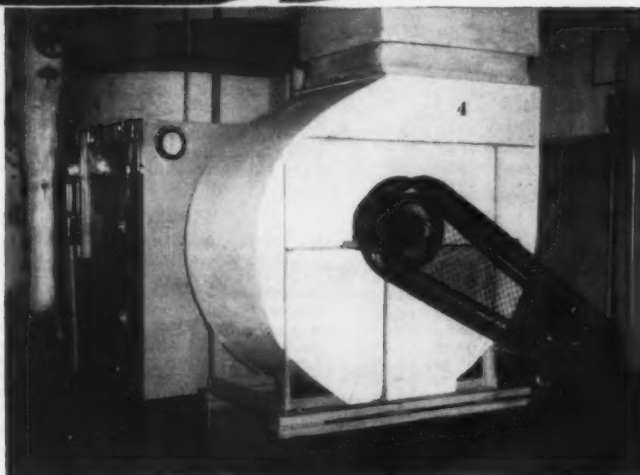


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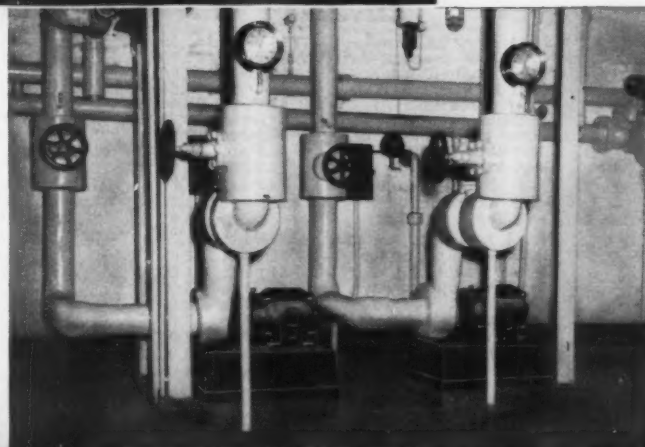
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**FIRST FOR
PUMPS AND FANS**

Iron and Steel

SCRAP PRICES

Going prices as obtained in the trade by THE IRON AGE, based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	\$43.50 to \$44.00
No. 2 hvy. melting	37.50 to 38.00
No. 1 bundles	43.50 to 44.00
No. 2 bundles	36.50 to 37.00
Machine shop turn.	33.00 to 33.50
Mixed bor. and ms. turns	33.00 to 33.50
Shoveling turnings	36.50 to 37.00
Cast iron borings	35.50 to 36.00
Low phos. plate	50.50 to 51.00
Heavy turnings	42.50 to 43.00
No. 1 RR. hvy. melting	49.50 to 50.00
Scrap rails, random lgth.	49.00 to 49.50
Rails 2 ft and under	50.00 to 51.00
RR. steel wheels	52.00 to 53.00
RR. spring steel	52.00 to 53.00
RR. couplers and knuckles	52.00 to 53.00
No. 1 machinery cast.	48.50 to 49.00
Mixed yard cast.	44.00 to 44.50
Heavy breakable cast.	39.50 to 40.00
Malleable	51.00 to 52.00

Chicago

No. 1 hvy. melting	\$40.00 to \$41.00
No. 2 hvy. melting	38.00 to 39.00
No. 1 factory bundles	40.00 to 41.00
No. 1 dealers' bundles	40.00 to 41.00
No. 2 dealers' bundles	32.00 to 33.00
Machine shop turn.	29.00 to 30.00
Mixed bor. and turn.	30.00 to 31.00
Shoveling turnings	31.00 to 32.00
Cast iron borings	31.00 to 32.00
Low phos. forge crops	49.00 to 50.00
Low phos. plate	48.00 to 49.00
No. 1 RR. hvy. melting	44.50 to 45.50
Scrap rails, random lgth.	53.00 to 54.00
Rerolling rails	57.00 to 58.00
Locomotive tires, cut	54.00 to 55.00
Cut bolsters & side frames	51.00 to 52.00
Angles and splice bars	54.00 to 55.00
RR. steel car axles	74.00 to 75.00
RR. couplers and knuckles	51.00 to 52.00
No. 1 machinery cast.	50.00 to 51.00
No. 1 agricul. cast.	47.00 to 48.00
Heavy breakable cast.	39.00 to 40.00
RR. grate bars	38.00 to 39.00
Cast iron brake shoes	41.00 to 42.00
Cast iron car wheels	42.00 to 43.00
Malleable	54.00 to 55.00

Philadelphia

No. 1 hvy. melting	\$38.00 to \$39.00
No. 2 hvy. melting	35.00 to 36.00
No. 1 bundles	38.00 to 39.00
No. 2 bundles	31.00 to 32.00
Machine shop turn.	27.00 to 28.00
Mixed bor. and turn.	25.00 to 26.00
Shoveling turnings	32.00 to 33.00
Low phos. punchings, plate	44.00 to 45.00
Low phos. 5 ft and under	44.00 to 45.00
Low phos. bundles	41.00 to 42.00
Hvy. axle forge turn.	38.00 to 39.00
Clean cast chem. borings	39.00 to 40.00
RR. steel wheels	46.00 to 47.00
RR. spring steel	46.00 to 47.00
Rails 18 in. and under	48.00 to 49.00
No. 1 machinery cast.	43.00 to 44.00
Mixed yard cast.	36.00 to 37.00
Heavy breakable cast.	37.50 to 38.50
Cast iron carwheels	46.00 to 47.00
Malleable	49.00 to 50.00

Cleveland

No. 1 hvy. melting	\$43.00 to \$43.50
No. 2 hvy. melting	35.50 to 36.00
No. 1 busheling	43.00 to 43.50
No. 1 bundles	43.00 to 43.50
No. 2 bundles	28.00 to 28.50
Machine shop turn.	30.00 to 30.50
Mixed bor. and turn.	33.00 to 33.50
Shoveling turnings	33.00 to 33.50
Cast iron borings	33.00 to 33.50
Low phos. 2 ft and under	44.00 to 44.50
Steel axle turn.	43.00 to 43.50
Drop forge flashings	43.00 to 43.50
No. 1 RR. hvy. melting	47.00 to 47.50
Rails 3 ft and under	51.00 to 52.00
Rails 18 in. and under	54.00 to 55.00
No. 1 machinery cast.	49.00 to 50.00
RR. cast.	49.00 to 50.00
RR. grate bars	37.00 to 38.00
Stove plate	41.00 to 42.00
Malleable	49.00 to 50.00

Youngstown

No. 1 hvy. melting	\$43.50 to \$44.00
No. 2 hvy. melting	37.50 to 38.00
No. 1 bundles	43.50 to 44.00

No. 2 bundles	\$25.00 to \$26.00
Machine shop turn.	22.00 to 22.50
Mixed bor. and turn.	22.00 to 23.00
Shoveling turnings	25.00 to 25.50
No. 1 busheling	32.00 to 33.00
Clean cast chem. borings	29.00 to 30.00
No. 1 machinery cast.	35.00 to 36.00
Mixed cupola cast.	33.00 to 34.00
Heavy breakable cast.	30.00 to 31.00
Stove plate	31.00 to 32.00

Detroit

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$37.00 to \$38.00
No. 2 hvy. melting	32.00 to 33.00
No. 1 bundles	40.00 to 41.00
New busheling	37.00 to 38.00
Flashings	37.00 to 38.00
Machine shop turn.	26.00 to 27.00
Mixed bor. and turn.	26.00 to 27.00
Shoveling turnings	31.00 to 32.00
Cast iron borings	31.00 to 32.00
Low phos. plate	38.00 to 39.00
No. 1 cupola cast.	40.50 to 41.00
Heavy breakable cast.	32.50 to 33.00
Stove plate	34.50 to 35.00
Automotive cast.	44.00 to 45.00

Cincinnati

Per gross ton, f.o.b. cars:	
No. 1 hvy. melting	\$42.50 to \$43.00
No. 2 hvy. melting	36.50 to 37.00
No. 1 bundles	42.50 to 43.00
No. 2 bundles, black	36.50 to 37.00
No. 2 bundles, mixed	27.50 to 28.00
Machine shop turn.	24.50 to 25.00
Mixed bor. and turn.	26.50 to 27.00
Shoveling turnings	27.50 to 28.00
Cast iron borings	27.50 to 28.00
Low phos. 18 in. under	51.00 to 52.00
Rails, random lengths	46.00 to 47.00
Rails, 18 in. and under	54.00 to 55.00
No. 1 cupola cast.	50.00 to 51.00
Hvy. breakable cast.	41.00 to 42.00
Drop broken cast.	52.00 to 53.00

San Francisco

F.o.b. shipping point:	
No. 1 hvy. melting	\$23.50
No. 2 hvy. melting	21.00
No. 1 bundles	23.50
No. 2 bundles	19.50
No. 3 bundles	16.50
Machine shop turn.	12.00
Elec. fur. 1 ft and under	34.00
No. 1 RR. hvy. melting	23.50
Scrap rails, random lgth.	23.50
No. 1 cupola cast.	\$33.50 to 35.00

Los Angeles

F.o.b. shipping point:	
No. 1 hvy. melting	\$23.50
No. 2 hvy. melting	21.00
No. 1 bundles	23.50
No. 2 bundles	19.50
No. 3 bundles	16.50
Machine shop turn.	12.00
Elec. fur. 1 ft and under	34.00
No. 1 RR. hvy. melting	23.50
No. 1 cupola cast.	\$33.50 to 35.00

Seattle

No. 1 hvy. melting	\$24.00
No. 2 hvy. melting	24.00
No. 1 bundles	22.00
No. 2 bundles	22.00
No. 3 bundles	18.00
Elec. fur. 1 ft and under	\$29.00 to 30.00
RR. hvy. melting	25.00
No. 1 cupola cast	35.00
Heavy breakable cast.	25.00

Hamilton, Ont.

No. 1 hvy. melting	\$30.00
No. 1 bundles	30.00
No. 2 bundles	29.50
Mechanical bundles	28.00
Mixed steel scrap	26.00
Mixed bor. and turn.	29.00
Rails, remelting	31.00
Rails, rerolling	24.50
Bushellings	29.00
Bush., new fact, prep'd.	23.00
Bush., new fact, unprep'd.	23.00
Short steel turnings	40.00
Cast scrap	

Buffalo

No. 1 hvy. melting	\$39.00 to \$40.00
No. 2 hvy. melting	36.00 to 37.00
No. 1 busheling	36.00 to 37.00
No. 1 bundles	37.00 to 38.00
No. 2 bundles	34.00 to 35.00
Machine shop turn.	30.00 to 31.00
Mixed bor. and turn.	30.00 to 31.00
Shoveling turnings	32.00 to 34.00
Cast iron borings	30.00 to 31.00
Low phos. plate	41.00 to 42.00
Scrap rails, random lgth.	44.00 to 45.00
Rails 2 ft and under	48.00 to 50.00
RR. steel wheels	47.00 to 48.00
RR. spring steel	47.00 to 48.00
RR. couplers and knuckles	47.00 to 48.00
No. 1 machinery cast.	41.50 to 42.00
No. 1 cupola cast.	38.50 to 39.00
Small Indus. malleable	37.00 to 38.00

Birmingham

No. 1 hvy. melting	\$33.00 to \$34.00
No. 2 hvy. melting	29.00 to 30.00
No. 2 bundles	27.00 to 28.00
No. 1 busheling	29.00 to 30.00
Machine shop turn.	27.00 to 28.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	24.00 to 25.00
Bar crops and plate	41.00 to 42.00
Structural and plate	41.00 to 42.00
Scrap rails, random lgth.	43.00 to 44.00
Rerolling rails	48.00 to 49.00
Rails 2 ft and under	48.00 to 49.00
Angles & splice bars	47.00 to 48.00
Std. steel axles	44.00 to 45.00
No. 1 cupola cast	45.00 to 46.00
Stove plate	43.00 to 44.00
Cast iron carwheels	37.00 to 38.00

St. Louis

No. 1 hvy. melting	\$38.50 to \$39.50
No. 2 hvy. melting	33.00 to 34.00
No. 2 bundled sheets	33.00 to 34.00
Machine shop turn.	27.50 to 28.50
Shoveling turnings	28.00 to 29.00
Rails, random lengths	50.00 to 51.00
Rails 3 ft and under	54.00 to 56.00
Locomotive tires, uncut	48.00 to 49.00
Angles and splice bars	54.00 to 55.00
Std. steel car axles	76.00 to 78.00
RR. spring steel	55.00 to 56.00
No. 1 machinery cast.	44.00 to 45.00
Hvy. breakable cast.	39.00 to 40.00
Cast iron brake shoes	42.00 to 44.00
Stove plate	37.00 to 38.00
Cast iron car wheels	44.00 to 45.00
Malleable	52.00 to 54.00

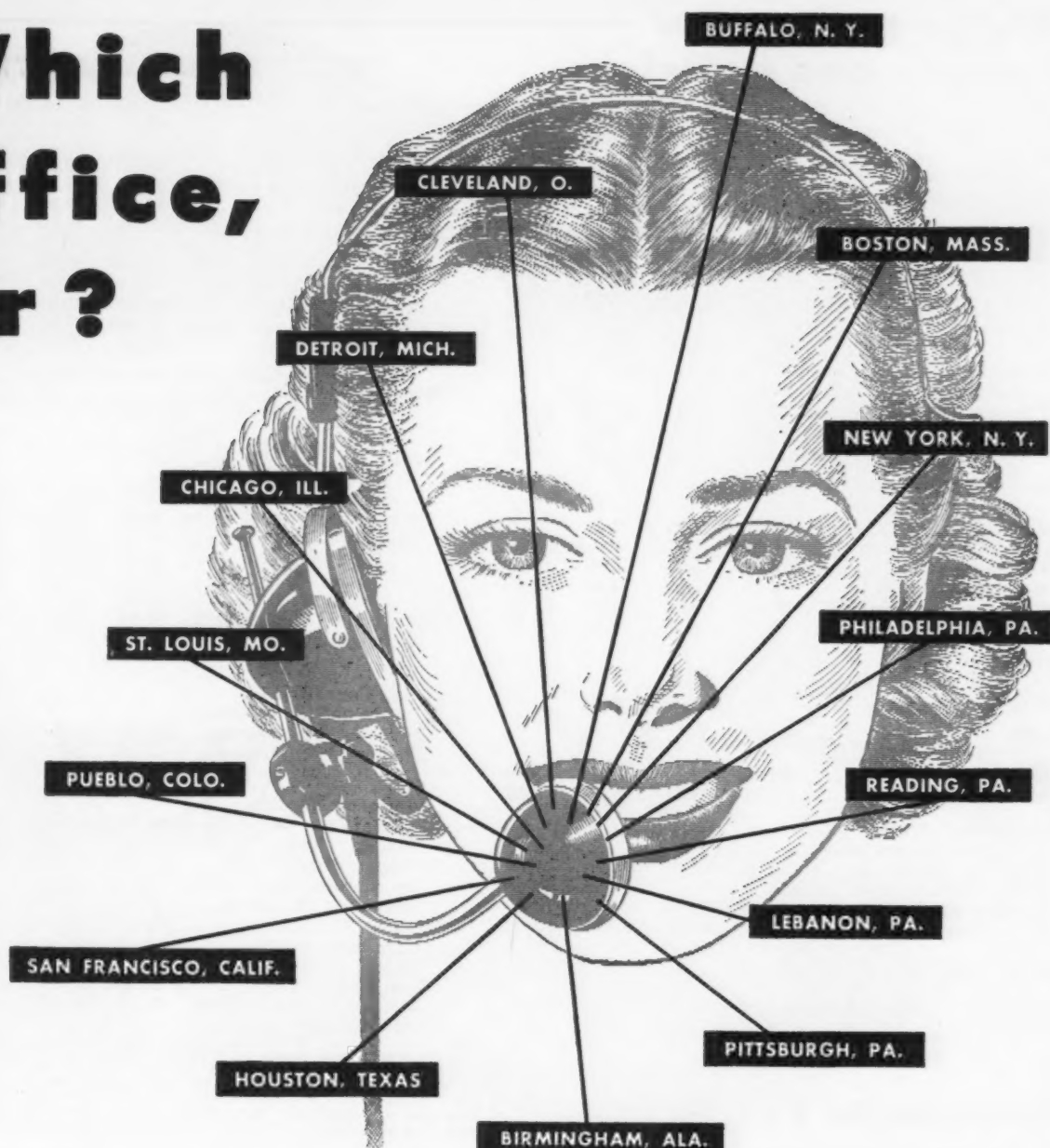
New York

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$33.50 to \$34.00
No. 2 hvy. melting	27.50 to 28.50
No. 2 bundles	26.00 to 27.00
Machine shop turn.	23.00 to 23.50
Mixed bor. and turn.	23.00 to 23.50
Shoveling turnings	25.00 to 25.50
Clean cast chem. bor.	34.00 to 35.00
No. 1 machinery cast.	33.00 to 33.50
Mixed yard cast.	30.50 to 31.00
Charging box cast.	30.50 to 31.00
Heavy breakable cast.	30.00 to 30.50
Unstrp. motor blocks	24.00 to 25.00

Boston

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$32.50 to \$33.50
No. 2 hvy. melting	25.00 to 26.00
No. 1 bundles	32.50 to 33.50

Which office, sir?



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LEADERS IN IRON AND STEEL SCRAP SINCE 1889

August 31, 1950

Comparison of Prices

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel:	Aug. 29, 1950	Aug. 22, 1950	Aug. 1, 1950	Aug. 30, 1949
(cents per pound)	1950	1950	1950	1949
Hot-rolled sheets	3.35	3.35	3.35	3.25
Cold-rolled sheets	4.10	4.10	4.10	4.00
Galvanized sheets (10 ga)	4.40	4.40	4.40	4.40
Hot-rolled strip	3.25	3.25	3.25	3.25
Cold-rolled strip	4.21	4.21	4.21	4.038
Plate	3.50	3.50	3.50	3.40
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R strip (No. 302)	34.50	34.50	34.50	33.00

Tin and Terneplate:

(dollars per base box)				
Tinplate (1.50 lb) cokes	\$7.50	\$7.50	\$7.50	\$7.75
Tinplate, electro (0.50 lb)	6.60	6.60	6.60	6.70
Special coated mfg. ternes	6.35	6.35	6.35	6.65

Bars and Shapes:

(cents per pound)				
Merchant bars	3.45	3.45	3.45	3.35
Cold-finished bars	4.145	4.145	4.145	3.995
Alloy bars	3.95	3.95	3.95	3.75
Structural shapes	3.40	3.40	3.40	3.25
Stainless bars (No. 302)	30.00	30.00	30.00	28.50
Wrought iron bars	9.50	9.50	9.50	9.50

Wire:

(cents per pound)				
Bright wire	4.50	4.50	4.50	4.15

Rails:

(dollars per 100 lb)				
Heavy rails	\$3.40	\$3.40	\$3.40	\$3.20
Light rails	3.75	3.75	3.75	3.55

Semifinished Steel:

(dollars per net ton)				
Rerolling billets	\$54.00	\$54.00	\$54.00	\$52.00
Slabs, rerolling	54.00	54.00	54.00	52.00
Forging billets	63.00	63.00	63.00	61.00
Alloy blooms, billets, slabs	66.00	66.00	66.00	63.00

Wire Rod and Skelp:

(cents per pound)				
Wire rods	3.85	3.85	3.85	3.40
Skelp	3.15	3.15	3.15	3.25

Price advances over previous week are printed in Heavy Type; declines appear in Italics.

Pig Iron:	Aug. 29, 1950	Aug. 22, 1950	Aug. 1, 1950	Aug. 30, 1949
(per gross ton)	1950	1950	1950	1949
No. 2, foundry, del'd Phila.	\$51.76	\$51.76	\$50.42	\$50.56
No. 2, Valley furnace	46.50	46.50	46.50	46.50
No. 2, Southern Cin'ti.	49.08	49.08	49.08	46.47
No. 2, Birmingham	42.38	42.38	42.38	39.38
No. 2, foundry, Chicago†	46.50	46.50	46.50	46.50
Basic del'd Philadelphia	50.92	50.92	49.92	49.74
Basic, Valley furnace	46.00	46.00	46.00	46.00
Malleable, Chicago†	46.50	46.50	46.50	46.50
Malleable, Valley	46.50	46.50	46.50	46.50
Charcoal, Chicago	68.56	68.56	68.56	73.78
Ferromanganese†	173.40	173.40	173.40	173.40

†The switching charge for delivery to foundries in the Chicago district is \$1 per ton.

‡Average of U. S. prices quoted on Ferroalloy page.

Scrap:

(per gross ton)				
Heavy melt'g steel, P'gh.	\$43.75	\$45.75	\$41.75	\$24.25
Heavy melt'g steel, Phila.	38.50	38.50	32.50	21.25
Heavy melt'g steel, Ch'go	40.50	40.50	37.75	24.50
No. 1 hy. com. sh't, Det.	40.50	40.50	38.25	21.50
Low phos. Young'n	46.75	46.75	43.50	27.25
No. 1 cast, Pittsburgh	48.75	48.75	43.75	36.50
No. 1 cast, Philadelphia	43.50	42.50	39.50	32.50
No. 1 cast, Chicago	50.50	50.50	47.50	41.50

Coke: Connellsville:

(per net ton at oven)				
Furnace coke, prompt	\$14.25	\$14.25	\$14.25	\$14.25
Foundry coke, prompt	16.25	16.25	16.25	15.75

Nonferrous Metals:

(cents per pound to large buyers)				
Copper, electro, Conn.	22.60	22.60*	22.50	17.625
Copper, Lake, Conn.	24.625	24.625	22.625	17.75
Tin, Straits, New York	\$1.03†	\$1.06*	97.50	\$1.03
Zinc, East St. Louis	15.00	15.00	15.00	10.00
Lead, St. Louis	13.80	13.80	11.80	14.925
Aluminum, virgin	17.50	17.50	17.50	17.00
Nickel, electrolytic	51.22	51.22	51.22	42.93
Magnesium, ingot	22.50	22.50	22.50	20.50
Antimony, Laredo, Tex.	24.50	24.50	24.50	38.50

†Tentative. *Revised.

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1940 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 139 of May 12, 1949, issue.)

Composite Prices

Finished Steel Base Price

Aug. 29, 1950	3.837¢ per lb.
One week ago	3.837¢ per lb.
One month ago	3.837¢ per lb.
One year ago	3.705¢ per lb.

	High	Low
1950....	3.837¢ Jan. 3	3.837¢ Jan. 3
1949....	3.837¢ Dec. 27	3.705¢ May 3
1948....	3.721¢ July 27	3.193¢ Jan. 1
1947....	3.193¢ July 29	2.848¢ Jan. 1
1946....	2.848¢ Dec. 31	2.464¢ Jan. 1
1945....	2.464¢ May 29	2.396¢ Jan. 1
1944....	2.396¢	2.396¢
1943....	2.396¢	2.396¢
1942....	2.396¢	2.396¢
1941....	2.396¢	2.396¢
1940....	2.30467¢ Jan. 2	2.24107¢ Apr. 16
1939....	2.35367¢ Jan. 3	2.26689¢ May 16
1938....	2.58414¢ Jan. 4	2.27207¢ Oct. 18
1937....	2.58414¢ Mar. 9	2.32263¢ Jan. 4
1936....	2.32263¢ Dec. 28	2.05200¢ Mar. 10
1935....	2.07542¢ Oct. 1	2.06492¢ Jan. 8
1932....	1.89196¢ July 5	1.83910¢ Mar. 1
1929....	2.31773¢ May 28	2.26498¢ Oct. 29

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strip, representing major portion of finished steel shipment. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Pig Iron

.....	46.61 per gross ton
.....	46.61 per gross ton
.....	46.38 per gross ton
.....	45.91 per gross ton

High	Low
\$46.61 Aug. 8	\$45.88 Jan. 3
46.87 Jan. 18	45.88 Sept. 6
46.91 Oct. 12	39.58 Jan. 6
37.98 Dec. 30	30.14 Jan. 7
30.14 Dec. 10	25.37 Jan. 1
25.37 Oct. 23	23.61 Jan. 2
\$23.61	\$23.61
23.61	23.61
23.61	23.61
\$23.61 Mar. 20	\$23.45 Jan. 2
23.45 Dec. 23	22.61 Jan. 2
22.61 Sept. 19	20.61 Sept. 12
23.25 June 21	19.61 July 6
32.25 Mar. 9	20.25 Feb. 16
19.74 Nov. 24	18.73 Aug. 11
18.84 Nov. 5	17.83 May 14
14.81 Jan. 5	13.56 Dec. 6
18.71 May 14	18.21 Dec. 17

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Scrap Steel

.....	\$40.92 per gross ton
.....	41.58 per gross ton
.....	37.33 per gross ton
.....	23.33 per gross ton

High	Low
\$41.58 Aug. 22	\$26.25 Jan. 3
43.00 Jan. 4	19.33 June 28
43.16 July 27	39.75 Mar. 9
42.58 Oct. 28	29.50 May 20
31.17 Dec. 24	19.17 Jan. 1
19.17 Jan. 2	18.92 May 22
19.17 Jan. 11	15.76 Oct. 24
\$19.17	\$19.17
19.17	19.17
\$22.00 Jan. 7	\$19.17 Apr. 10
21.83 Dec. 30	16.04 Apr. 9
22.50 Oct. 3	14.08 May 16
15.00 Nov. 22	11.00 June 7
21.92 Mar. 30	12.67 June 9
17.75 Dec. 21	12.67 June 8
13.42 Dec. 10	10.33 Apr. 29
8.50 Jan. 12	6.43 July 5
17.58 Jan. 29	14.08 Dec. 8

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

WHEN YOUR PROBLEM IS SCRAP...



Since 1898—for over fifty years—Alter Co. has served the scrap consumers as well as the scrap producing industry and scrap dealer.

Without obligation we will be pleased to counsel with you.

Cast Iron
Electric Furnace Grades
Open Hearth
Foundry Steel
Sheet Iron for Baling
Stainless Steel
Non-Ferrous Metals

Over 50 Years
ALTER
C O M P A N Y

1700 ROCKINGHAM ROAD DAVENPORT 2, IOWA

IRON AGE	Smaller numbers in price boxes indicate producing companies. For main office locations, see key on facing page. Base prices at producing points apply only to sizes and grades produced in these areas. Prices are in cents per lb unless otherwise noted. Extras apply.													
STEEL PRICES	Pittsburgh	Chicago	Gary	Cleveland	Canton Massillon	Middle- town	Youngs- town	Bethle- hem	Buffalo	Ceneho- hocken	Johns- town	Sear- rows Point	Granite City	Detroit
INGOTS Carbon forging, net ton	\$50.00 ¹													\$50.00 ¹
Alloy, net ton	\$51.00 ¹⁻¹⁷													\$51.00 ¹
BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton	\$53.00 ¹	\$53.00 ¹	\$53.00 ¹				\$57.00 ¹³		\$53.00 ³	\$62.00 ²⁸	\$53.00 ³			
Carbon forging billets, net ton	\$63.00 ¹	\$63.00 ¹⁻⁴	\$63.00 ¹⁻⁸	\$63.00 ⁴			\$63.00 ²⁸		\$63.00 ³⁻⁴	\$68.00 ²⁸	\$63.00 ³			\$66.00 ¹
Alloy, net ton	\$66.00 ¹⁻¹⁷	\$66.00 ¹⁻⁴	\$66.00 ¹		\$66.00 ⁴⁻⁴²		\$66.00 ¹³	\$66.00 ³	\$66.00 ³⁻⁴	\$70.00 ²⁸	\$66.00 ³			\$66.00 ¹
PIPE SKELP	3.15 ¹						3.15 ¹⁻⁴							
WIRE RODS	3.85 ²⁻¹⁸	3.85 ²⁻⁴⁻²³	3.85 ²	3.85 ²			3.85 ²				3.85 ³	3.95 ³		
SHEETS Hot-rolled (18 ga. & hvr.)	3.35 ¹⁻⁶⁻⁹⁻¹⁸	3.35 ²³	3.35 ¹⁻⁶⁻⁸	3.35 ¹⁻⁸			3.35 ^{1-4-6-3.50¹³}		3.35 ³	3.60 ²⁸		3.35 ³		3.55 ¹² 4.15 ⁴⁷
Cold-rolled	4.10 ¹⁻⁶⁻⁷⁻⁹⁻¹⁸ 5.10 ²³		4.10 ¹⁻⁶⁻⁸	4.10 ¹⁻¹⁸		4.10 ⁷	4.10 ⁴⁻⁸		4.10 ³			4.10 ³	4.30 ²³	4.30 ¹²
Galvanized (10 gage)	4.40 ¹⁻⁹⁻¹⁸		4.40 ¹⁻⁸		4.40 ⁴		4.65 ²⁻⁴ 4.75 ⁴⁴					4.40 ³		
Enameling (12 gage)	4.40 ¹		4.40 ¹⁻⁸	4.40 ⁴		4.40 ⁷	4.40 ⁶ 4.90 ⁷⁻⁸						4.60 ²³	4.70 ¹²
Long tines (10 gage)	4.80 ⁹⁻¹⁸		4.80 ¹			4.80 ⁷	4.80 ⁶⁻⁴							
Hi Str. low alloy, h.r.	5.05 ¹⁻⁶⁻⁹	5.05 ¹	5.05 ¹⁻⁶⁻⁸	5.05 ⁴⁻⁸			5.05 ¹⁻⁴⁻⁶⁻¹³		5.05 ³	5.05 ²⁸		5.05 ³		5.25 ¹²
Hi str. low alloy, c.r.	6.20 ¹⁻⁶⁻⁹		6.20 ¹⁻⁶⁻⁸	6.20 ¹⁻⁸			6.20 ⁴⁻⁶⁻¹³		6.20 ³			6.20 ³		6.40 ¹²
Hi str. low alloy, galv.	6.75 ¹											6.75 ³		
STRIP Hot-Rolled	3.25 ^{2-7-9-3.50²⁻⁸⁻⁴¹}	3.25 ²³⁻²⁸	3.25 ¹⁻⁶⁻⁸	3.25 ²			3.25 ^{1-4-6-3.50¹³}		3.25 ³	3.50 ²⁸		3.25 ³		3.45 ¹² 4.05 ⁴⁷
Cold-rolled	4.15 ^{2-7-9-4.50²³}	4.30 ²⁸ 4.50 ⁴⁴	4.30 ²⁸	4.15 ²⁻⁸		4.15 ⁷	4.15 ⁴⁻⁶⁻⁴⁸⁻⁴⁹ 4.50 ¹³⁻⁴⁰		4.15 ³			4.15 ³		4.35 ¹² 4.75 ²⁸⁻⁴¹ 4.95 ⁴⁷
Hi str. low alloy, h.r.	4.95 ²		4.95 ¹⁻⁶⁻⁸	4.95 ²			4.95 ¹⁻⁴⁻⁶⁻¹³		4.95 ³	4.95 ²⁸		4.95 ³		5.15 ¹²
Hi Str. low alloy, c.r.	6.20 ²			6.20 ²⁻⁸			6.20 ⁴⁻⁶⁻¹³		6.40 ³			6.40 ³		6.40 ¹²
TINPLATE ¹ Coke, 1.50-lb base box 1.25 lb. deduct 20¢	\$7.50 ¹⁻³⁻⁹⁻¹⁸		\$7.50 ¹⁻⁸				\$7.50 ⁴					\$7.60 ³	\$7.70 ²³	
Electrolytic 0.25, 0.50, 0.75 lb box	Deduct \$1.15, 90¢ and 65¢ respectively from 1.50-lb coke base box price													
BLACKPLATE, 29 gage Hollowware enameling	5.30 ¹⁻⁴⁻¹⁸		5.30 ¹⁻⁸				5.30 ⁴					5.40 ³	5.50 ²³	
BARS Carbon steel	3.45 ¹⁻⁶⁻⁹	3.45 ¹⁻⁴⁻²³	3.45 ¹⁻⁶⁻⁸	3.45 ⁴	3.45 ⁴		3.45 ¹⁻⁴⁻⁶		3.45 ³⁻⁴		3.45 ³			3.65 ¹²
Reinforcing ¹	3.45 ¹⁻⁶	3.45 ⁴	3.45 ¹⁻⁶⁻⁸	3.45 ⁴			3.45 ¹⁻⁴⁻⁶		3.45 ³⁻⁴		3.45 ³	3.45 ³		
Cold-finished	4.10 ⁵ 4.15 ²⁻⁴⁻¹⁷⁻³²⁻⁶⁹⁻⁷¹	4.15 ²⁻²³⁻⁶⁹⁻⁷⁰	4.15 ⁴⁻⁷³⁻⁷⁴	4.15 ²⁻⁸¹	4.15 ⁴⁻⁵³⁻⁸³		4.15 ⁶⁻⁴⁹⁻⁵⁷		4.15 ⁷⁻⁹					4.35 ¹² 4.30 ⁴⁴
Alloy, hot-rolled	3.95 ¹⁻¹⁷	3.95 ¹⁻⁴⁻²³	3.95 ¹⁻⁶⁻⁸		3.95 ⁴		3.95 ¹⁻⁶⁻²⁸	3.95 ³	3.95 ²⁻⁴		3.95 ³			4.25 ¹²
Alloy, cold-drawn	4.90 ²⁻¹⁷⁻³²⁻⁶⁹⁻⁷¹	4.90 ²⁻²³⁻⁶⁹⁻⁷⁰	4.90 ⁴⁻⁷³⁻⁷⁴	4.90 ²⁻⁸¹	4.90 ⁴⁻⁴⁹⁻⁸³		4.90 ⁶⁻²⁸⁻⁵⁷	4.90 ³	4.90 ²⁻⁷⁰					5.05 ⁴⁴
Hi str. low alloy, h.r.	5.20 ¹⁻⁶		5.20 ¹⁻⁶⁻⁸	5.20 ⁴			5.20 ¹⁻⁶	5.20 ³	5.20 ³		5.20 ³			5.40 ¹²
PLATE Carbon steel	3.50 ¹⁻⁶	3.50 ¹	3.50 ¹⁻⁶⁻⁸	3.50 ⁴			3.50 ¹⁻¹³		3.50 ³	3.75 ²⁸	3.50 ³	3.50 ³		3.75 ¹²
Floor Plates	4.55 ¹	4.55	4.55 ²	4.55 ⁵						4.55 ²⁸				
Alloy	4.40 ¹	4.40 ¹	4.40 ¹				4.40 ¹³			4.55 ²⁸	4.40	4.40 ³		
Hi Str. low alloy	5.35 ¹⁻⁸	5.35 ¹	5.35 ¹⁻³	5.35 ⁴⁻⁸			5.35 ⁸			5.35 ²⁸	5.35 ³	5.35 ³		5.60 ¹²
SHAPES, Structural	3.40 ¹⁻⁶⁻⁹	3.40 ¹⁻²³	3.40 ¹⁻⁶⁻⁸					3.45 ³	3.45 ²		3.45 ³			
Hi Str. low alloy	5.15 ¹⁻⁸	5.15 ¹	5.15 ¹⁻⁶⁻⁸				5.15 ⁶	5.20 ³	5.20 ³		5.20 ³			
MANUFACTURERS' WIRE Bright	4.50 ²⁻⁶⁻¹⁸⁻²³⁻³⁴	4.50 ²⁻⁴⁻¹²⁻²³⁻³⁴		4.50 ²⁻⁷⁷			4.50 ⁶	Kokomo=4.60 ²⁸			4.50 ³	4.60 ³	Duluth=4.50 ³ Pueblo=4.75 ¹⁴	
PILING, Steel Sheet	4.20 ¹⁻⁹	4.20 ¹							4.20 ³					

Smaller numbers indicate producing companies. See key at right.
Prices are in cents per lb unless otherwise noted. Extras apply.

IRON AGE

STEEL PRICES

Kansas City	Houston	Birmingham	WEST COAST Seattle, San Francisco, Los Angeles, Fontana	
			F = \$75.00	INGOTS Carbon forging, net ton
	\$59.00 ¹¹		F = \$77.00	Alloy, net ton
		\$63.00 ¹¹	F = \$72.00 ¹⁹	BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton
	\$71.00 ¹¹	\$63.00 ¹¹	F = \$82.00 ¹⁹	Carbon forging billets, net ton
	\$74.00 ¹¹		F = \$85.00 ¹⁹	Alloy net ton
				PIPE SKELP
	4.25 ¹¹	3.85 ¹¹	SF = 4.50 ²⁴ LA = 4.65 ^{24, 43}	WIRE RODS
			Portsmouth = 3.85 ²⁹ Worcester = 4.15 ²	
		3.35 ¹¹	SF, LA = 4.05 ²⁴ F = 4.25 ¹⁹	SHEETS Hot-rolled (18 ga. & hvr.)
		4.10 ¹¹	SF = 5.05 ²⁴ F = 5.00 ¹⁹	Cold-rolled
		4.40 ¹¹	SF, LA = 5.15 ²⁴	Galvanized (10 g. e)
			Ashland = 4.40 ²⁷ Kokomo = 4.50 ²⁹	Enameling (12 gage)
		5.05 ¹¹	F = 6.74 ¹⁹	Long ternes (10 gage)
			F = 7.05 ¹⁹	Hi Str. low alloy, h.r.
				Hi Str. low alloy, c.r.
3.85 ¹¹	3.85 ¹¹	3.25 ¹¹	SF, LA = 4.00 ^{24, 43} F = 4.40 ¹⁹ , S = 4.25 ²³	Hi Str. low alloy, galv.
			Ashland = 3.25 ²⁷ Atlanta = 3.40 ²⁸	STRIP Hot-rolled
			F = 5.75 ¹⁹ LA = 5.85 ²⁷	Cold-rolled
		4.95 ¹¹	F = 6.84 ¹⁹	Hi Str. low alloy, h. r.
			F = 6.95 ¹⁹	Hi Str. low alloy, c. r.
		7.60 ¹¹	SF = 8.25 ²⁴	TINPLATE Cokes, 1.50-lb base box 1.25 lb, deduct 20¢
Deduct \$1.15, 90¢ and 65¢ respectively from 1.50-lb coke base box price				Electrolytic 0.25, 0.50, 0.75 lb box
4.05 ¹¹	3.85 ¹¹	3.45 ¹¹	SF, LA = 4.15 ²⁴ LA = 4.15 ²³	BLACKPLATE, 29 gage Heliware enameling
4.05 ¹¹	3.85 ¹¹	3.45 ¹¹	SF, S = 4.20 ²² F = 4.10 ¹⁹	BARS Carbon steel
			Atlanta = 3.60 ²⁸	Reinforcing†
			Putnam, Newark = 4.55 ²⁹	Cold-finished
4.50 ¹¹	4.35 ¹¹		LA = 5.00 ²³ F = 4.95 ¹⁹	Alloy, hot-rolled
			Newark ²⁹ , Worcester ² = 5.20 Hartford = 5.20 ⁴	Alloy, cold-drawn
		5.20 ¹¹	F = 6.25 ¹⁹	Hi Str. low alloy, h.r.
	3.90 ¹¹	3.50 ¹¹	F = 4.10 ¹⁹ S = 4.40 ²² Geneva = 3.50 ¹⁶	PLATE Carbon steel
			Claymont = 3.90 ²⁹ Coatesville = 3.90 ¹¹ Harrisburg = 4.25 ²⁸	Floor plates
			Harrisburg = 5.25 ²⁵	Alloy
			Coatesville = 4.80 ²¹	Hi Str. low alloy
		5.35 ¹¹	F = 5.40 ¹⁹ F = 5.95 ¹⁹	
4.00 ¹¹	3.80 ¹¹	3.40 ¹¹	SF = 3.95 ²² LA = 4.00 ^{24, 43}	SHAPES, Structural
		5.15 ¹¹	F = 4.00 ¹⁹ S = 4.05 ²²	Hi Str. low alloy
5.10 ¹¹	4.90 ¹¹	4.50 ¹¹	SF, LA = 5.45 ^{24, 43}	MANUFACTURERS' WIRE Bright
			Portsmouth = 4.50 ²⁹ Worcester = 4.80 ²	

KEY TO STEEL PRODUCERS

With Principal Offices

- 1 Carnegie-Illinois Steel Corp., Pittsburgh
- 2 American Steel & Wire Co., Cleveland
- 3 Bethlehem Steel Co., Bethlehem
- 4 Republic Steel Corp., Cleveland
- 5 Jones & Laughlin Steel Corp., Pittsburgh
- 6 Youngstown Sheet & Tube Co., Youngstown
- 7 Armco Steel Corp., Middletown, Ohio
- 8 Inland Steel Co., Chicago
- 9 Weirton Steel Co., Weirton, W. Va.
- 10 National Tube Co., Pittsburgh
- 11 Tennessee Coal, Iron & R. R. Co., Birmingham
- 12 Great Lakes Steel Corp., Detroit
- 13 Sharon Steel Corp., Sharon, Pa.
- 14 Colorado Fuel & Iron Corp., Denver
- 15 Wheeling Steel Corp., Wheeling, W. Va.
- 16 Geneva Steel Co., Salt Lake City
- 17 Crucible Steel Co. of America, New York
- 18 Pittsburgh Steel Co., Pittsburgh
- 19 Kaiser Steel Corp., Oakland, Calif.
- 20 Portsmouth Div., Detroit Steel Corp., Detroit
- 21 Lukens Steel Co., Coatesville, Pa.
- 22 Granite City Steel Co., Granite City, Ill.
- 23 Wisconsin Steel Co., South Chicago, Ill.
- 24 Columbia Steel Co., San Francisco
- 25 Copperweld Steel Co., Glassport, Pa.
- 26 Alan Wood Steel Co., Conshohocken, Pa.
- 27 Calif. Cold Rolled Steel Corp., Los Angeles
- 28 Allegheny Ludlum Steel Corp., Pittsburgh
- 29 Worth Steel Co., Claymont, Del.
- 30 Continental Steel Corp., Kokomo, Ind.
- 31 Rotary Electric Steel Co., Detroit
- 32 Laclede Steel Co., St. Louis
- 33 Northwestern Steel & Wire Co., Sterling, Ill.
- 34 Keystone Steel & Wire Co., Peoria, Ill.
- 35 Central Iron & Steel Co., Harrisburg, Pa.
- 36 Carpenter Steel Co., Reading, Pa.
- 37 Eastern Stainless Steel Corp., Baltimore
- 38 Washington Steel Corp., Washington, Pa.
- 39 Jessop Steel Co., Washington, Pa.
- 40 Blair Strip Steel Co., New Castle, Pa.
- 41 Superior Steel Corp., Carnegie, Pa.
- 42 Timken Steel & Tube Div., Canton, Ohio
- 43 Babcock & Wilcox Tube Co., Beaver Falls, Pa.
- 44 Reeves Steel & Mfg. Co., Dover, Ohio
- 45 John A. Roebling's Sons Co., Trenton, N. J.
- 46 Simonds Saw & Steel Co., Fitchburg, Mass.
- 47 McLouth Steel Corp., Detroit
- 48 Cold Metal Products Co., Youngstown
- 49 Thomas Steel Co., Warren, Ohio
- 50 Wilson Steel & Wire Co., Chicago
- 51 Sweet's Steel Co., Williamsport, Pa.
- 52 Superior Drawn Steel Co., Monaca, Pa.
- 53 Tremont Nail Co., Wareham, Mass.
- 54 Firth Sterling Steel & Carbide Corp., McKeesport, Pa.
- 55 Ingersoll Steel Div., Chicago
- 56 Phoenix Iron & Steel Co., Phoenixville, Pa.
- 57 Fitzsimmons Steel Co., Youngstown
- 58 Stanley Works, New Britain, Conn.
- 59 Universal-Cyclops Steel Corp., Bridgeville, Pa.
- 60 American Cladmetals Co., Carnegie, Pa.
- 61 Cuyahoga Steel & Wire Co., Cleveland
- 62 Bethlehem Pacific Coast Steel Corp., San Francisco
- 63 Follansbee Steel Corp., Pittsburgh
- 64 Niles Rolling Mill Co., Niles, Ohio
- 65 Atlantic Steel Co., Atlanta
- 66 Acme Steel Co., Chicago
- 67 Joslyn Mfg. & Supply Co., Chicago
- 68 Detroit Steel Corp., Detroit
- 69 Wyckoff Steel Co., Pittsburgh
- 70 Bliss & Laughlin, Inc., Harvey, Ill.
- 71 Columbia Steel & Shifting Co., Pittsburgh
- 72 Cumberland Steel Co., Cumberland, Md.
- 73 La Salle Steel Co., Chicago
- 74 Monarch Steel Co., Inc., Hammond, Ind.
- 75 Empire Steel Co., Mansfield, Ohio
- 76 Mahoning Valley Steel Co., Niles, Ohio
- 77 Oliver Iron & Steel Co., Pittsburgh
- 78 Pittsburgh Screw & Bolt Co., Pittsburgh
- 79 Standard Forging Corp., Chicago
- 80 Driver Harris Co., Harrison, N. J.
- 81 Detroit Tube & Steel Div., Detroit
- 82 Reliance Div., Eaton Mfg. Co., Massillon, Ohio
- 83 Sheffield Steel Corp., Kansas City
- 84 Plymouth Steel Co., Detroit
- 85 John A. Roebling's Sons Co., Trenton, N. J.

Notes: †Special coated mfg ternes deduct \$1.15 from 1.50-lb coke base box price.
Can-making quality blackplate, 55 to 125-lb, deduct \$1.90 from 1.50-lb coke base box.
‡Straight lengths only from producer to fabricator.

STAINLESS STEELS

Base prices, in cents per pound,
f.o.b. producing point

Product	301	302	303	304	316	321	347	410	416	430
Ingot, rerolling	13.75	14.50	16.00	15.50	23.75	19.25	21.00	12.25	14.25	12.50
Slabs, billets, rerolling	18.00	19.25	21.25	20.25	31.25	25.50	27.75	16.60	19.50	16.25
Forg. discs, die blocks, rings	32.00	32.00	34.50	33.50	50.50	38.00	42.50	26.00	26.50	26.50
Billets, forging	25.75	25.75	27.75	27.00	40.50	30.50	34.25	21.00	21.50	21.50
Bars, wire, structurals	30.00	30.00	32.50	31.50	47.50	35.50	40.00	24.50	25.00	25.00
Plates	32.00	32.00	34.00	34.00	50.50	39.50	44.00	26.00	26.50	26.50
Sheets	39.00	39.00	41.00	41.00	54.50	47.00	51.50	34.50	35.00	37.00
Strip, hot-rolled	25.50	27.00	31.25	29.00	47.25	35.75	40.00	22.50	29.25	23.00
Strip, cold-rolled	32.00	34.50	38.00	36.50	56.50	46.00	50.00	28.50	35.00	29.00

STAINLESS STEEL PRODUCING POINTS—*Sheets*: Midland, Pa., 17; Brackenridge, Pa., 28; Butler, Pa., 7; McKeesport, Pa., 1; Washington, Pa., 38, 39; Baltimore, 37; Middletown, Ohio, 7; Massillon, Ohio, 4; Gary, 1; Bridgeville, Pa., 59; New Castle, Ind., 55; Ft. Wayne, Ind., 67; Lockport, N. Y., 46.

Strip: Midland, Pa., 17; Cleveland, 2; Carnegie, Pa., 41; McKeesport, Pa., 54; Reading, Pa., 36; Washington, Pa., 38; W. Leechburg, Pa., 38; Bridgeville, Pa., 59; Detroit, 47; Massillon, Canton, Ohio, 4; Middletown, Ohio, 7; Harrison, N. J., 80; Youngstown, 48; Lockport, N. Y., 46; New Britain, Conn., 58; Sharon, 13; Butler, Pa., 7.

Bars: Baltimore, 7; Duquesne, Pa., 1; Munhall, Pa., 1; Reading, Pa., 36; Titusville, Pa., 59; Washington, Pa., 39; McKeesport, Pa., 1, 54; Bridgeville, Pa., 59; Dunkirk, N. Y., 28; Massillon, Ohio, 4; Chicago, 1; Syracuse, N. Y., 17; Watervliet, N. Y., 28; Waukegan, Ill., 2; Lockport, N. Y., 46; Canton, Ohio, 42; Ft. Wayne, Ind., 67.

Wire: Waukegan, Ill., 2; Massillon, Ohio, 4; McKeesport, Pa., 54; Bridgeport, Conn., 44; Ft. Wayne, Ind., 67; Trenton, N. J., 45; Harrison, N. J., 80; Baltimore, 7; Dunkirk, 28; *Structurals*: Baltimore, 7; Massillon, Ohio, 4; Chicago, 1, 67; Watervliet, N. Y., 28; Bridgeport, Conn., 44.

Plates: Brackenridge, Pa., 28; Butler, Pa., 7; Chicago, 1; Munhall, Pa., 1; Midland, Pa., 17; New Castle, Ind., 55; Lockport, N. Y., 46; Middletown, 7; Washington, Pa., 39; Cleveland, Massillon, 4.

Forged discs, die blocks, rings: Pittsburgh, 1, 17; Syracuse, 17; Ferndale, Mich., 28. *Forging billets*: Midland, Pa., 17; Baltimore, 7; Washington, Pa., 39; McKeesport, 54; Massillon, Canton, Ohio, 4; Watervliet, 28; Pittsburgh, Chicago, 1.

ELECTRICAL SHEETS

22 gage, HR cut lengths, f.o.b. mill

Cents per lb.

Armature	6.20
Electrical	6.70
Motor	7.95
Dynamo	8.75
Transformer 72	9.30
Transformer 65	9.85
Transformer 58	10.55
Transformer 52	11.35

PRODUCING POINTS—Beech Bottom, W. Va., 15; Brackenridge, Pa., 28; Folsom, W. Va., 63; Granite City, Ill., 22*; add 0.20¢; Indiana Harbor, Ind., 8; Mansfield, Ohio, 75; Niles, Ohio, 64, 76; Vandergrift, Pa., 1; Warren, Ohio, 4; Zanesville, Ohio, 7.

MERCHANT WIRE PRODUCTS

Base Column
Pittsburg, Calif.

To dealers, f.o.b. mill

Standard & coated nails	106	125
Woven wire fence†	116	139
Fence posts, carload††	116	...
Single loop bale ties...	113	137
Galvanized barbed wire**	126	146
Twisted barbed wire...	126	146

* Pgh., Chi., Duluth; Worcester, 6 columns higher; Houston, 8 columns higher; Kansas City, 12 columns higher. † 15½ gage and heavier. ** On 80 rod spools, in carloads. †† Duluth, Joliet; Johnstown, 112.

Base per
100 lb

Merch. wire annealed†	\$5.35	\$6.30
Merch. wire, galv.†	5.60	6.55
Cut nails, carload††	6.75	...

† Add 30¢ at Worcester; 20¢ at Chicago; 10¢ at Sparrows Pt.
†† Less 20¢ to jobbers.

‡ Torrance 126.

PRODUCING POINTS—Standard, Coated or galvanized nails, woven wire fence, bale ties, and barbed wire: Alabama City, Ala., 4; Atlanta, 65; Alliquippa, Pa., (except bale ties), 5; Bartonville, Ill. (except bale ties), 34; Chicago, 4; Donora, Pa., 2; Duluth, 2; Fairfield, Ala., 11; Johnstown, Pa. (except bale ties), 3; Joliet, Ill., 2; Kokomo, Ind., 30;

Minnequa, Colo., 14; Monessen, Pa. (except bale ties), 18; Pittsburg, Calif., 24; Portsmouth, Ohio, 20; Rankin, Pa. (except bale ties), 2; Sparrows Point (except woven fence), 3; Sterling, Ill., 33; San Francisco (except nails and woven fence), 14; Torrance, Calif. (nails only), 24; Worcester (nails only), 2; Houston (except bale ties), 83; Kansas City, 83.

Fence Posts: Duluth, 2; Johnstown, Pa., 3; Joliet, Ill., 2; Minnequa, Colo., 14; Moline, Ill., 4; Williamsport, Pa., 51.

Cut nails: Wheeling, W. Va., 15; Conshohocken, Pa., 26; Warehame, Mass., 53.

RAILS, TRACK SUPPLIES

F.o.b. mill

Standard rails, 100 lb and heavier, No. 1 quality, per 100 lb	\$3.40
Joint bars, per 100 lb	4.40
Light rails, per 100 lb	3.75

Base Price
cents per lb

Track spikes†	5.60
Axles	5.25
Screw spikes	8.60
Tie plates	4.20
Pittsburg, Torr., Calif.; Seattle...	4.35
Track bolts, untreated	8.85
Track bolts, heat treated, to railroads	9.10

† Kansas City, 5.85¢.

PRODUCING POINTS—Standard rails: Bessemer, Pa., 1; Ensley, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Minnequa, Colo., 14; Steelton, 3.

Light rails: All the above except Indiana Harbor and Steelton, plus Fairfield, Ala., 11; Johnstown, 3; Minnequa, 14.

Joint bars: Bessemer, Pa., 1; Fairfield, Ala., 11; Indiana Harbor, Ind., 8; Joliet, Ill., 1; Lackawanna, N. Y., 3; Steelton, Pa., 3; Minnequa, Colo., 14.

Track spikes: Indiana Harbor, Ind., 6, 8; Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 5; Chicago, 4; Struthers, 6; Youngstown, 4.

Track bolts: Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 77, 78.

Axles: Indiana Harbor, Ind., 79; Johnstown, Pa., 3.

Tie plates: Fairfield, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Pittsburgh, Calif., 24; Seattle, 62; Steelton, Pa., 3; Torrance, Calif., 24; Minnequa, Colo., 14.

Numbers after producing points
correspond to steel producers.
See key on Steel Price page.

PIPE AND TUBING

Base discounts, f.o.b. mills
Base price about \$200.00 per net ton

Standard, T & C

Steel, Butt weld*	Black	Galv
½-in.	40½ to 38½	21 to 19
¾-in.	43½ to 41½	25 to 23
1-in.	46 to 44	28 to 26
1½-in.	46½ to 44½	28½ to 26½
2-in.	47 to 45	29 to 27
2½ to 3-in.	47½ to 45½	29½ to 27½
3 to 4-in.	48 to 46	30 to 28

Steel, lap weld		
2-in.	38	19½
2½ to 3-in.	42	23½
3½ to 6-in.	43 to 40	24½ to 21½

Steel, seamless		
2-in.	36	17½
2½ to 3-in.	39	20½
3½ to 6-in.	41	22½

Wrought iron, butt weld		
½-in.	+26½	+66
¾-in.	+16½	+46
1 & 1½-in.	+10½	+36
1½-in.	+4½	+32½
2-in.	+4	+32

Wrought iron, lap weld		
2-in.	+13½	+40
2½ to 3½-in.	+11	+35½
4-in.	+6	+29½
4½ to 8-in.	+8	+31
9 to 12-in.	+18	+40½

Extra Strong, Plain Ends

Steel, butt weld		
½-in.	39½ to 37½	21½ to 19½
¾-in.	43½ to 41½	25½ to 23½
1-in.	45½ to 43½	28½ to 26½
1½-in.	46 to 44	29 to 27
2-in.	46½ to 44½	29½ to 27½
2½ to 3-in.	47 to 45	30 to 29
3 to 4-in.	47½ to 45½	30½ to 28½

Steel, lap weld		
2-in.	37	19½
2½ to 3-in.	42	24½
3½ to 6-in.	44½ to 41½	27 to 24

Steel, seamless		
2-in.	35	17½
2½ to 3-in.	38	21½
3½ to 6-in.	42½	25

Wrought iron, butt weld		
½-in.	+22	+60
¾-in.	+15½	+43
1 to 2 in.	+5½	+32

Wrought iron, lap weld		
2-in.	+10½	+36½
2½ to 4-in.	+1	+25
4½ to 6-in.	+5	+29½
7 & 8-in.	list	+24½
9 to 12-in.	+11½	+32½

For threads only, butt weld, lap weld and seamless pipe, one point higher discount (lower price) applies. For plain ends, butt weld, lap weld and seamless pipe 3-in. and smaller, three points higher discount (lower price) applies, while for lap weld and seamless 3½-in. and larger four points higher discount (lower price) applies. On butt weld lap weld steel pipe, jobbers are granted a discount of 5 pct. * Fontana, Calif., deduct 11 points from figures in left columns.

BOILER TUBES

Seamless steel and electric welded commercial boiler tubes and locomotive tubes, minimum wall. Prices per 100 ft at mill in carload lots, cut lengths 10 to 24 ft inclusive.

OD gage	Seamless	Electric	Weld
in. BWG	H.R.	C.R.	H.R.
2 13	\$20.61	\$24.24	\$19.99
2½ 12	27.71	32.58	26.88
3 12	30.82	36.27	29.90
3½ 11	38.52	45.38	37.36
4 10	47.82	56.25	46.39

WAREHOUSE PRICES

Base prices, f.o.b. warehouse, dollars per 100 lb.
(Metropolitan area delivery add 20¢ to base price except Birmingham, San Francisco, Cincinnati, New Orleans, St. Paul (*), add 15¢; Philadelphia, add 25¢).

CITIES	SHEETS			STRIP		PLATES	SHAPES	BARS		ALLOY BARS			
	Hot-Rolled	Cold-Rolled (16 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled			Hot-Rolled	Cold-Finished	Hot-Rolled, A 4615 As-rolled	Hot-Rolled, A 4140 Ann.	Cold-Drawn, A 4615 As-rolled	Cold-Drawn, A 4140 Ann.
Baltimore	5.15	6.39 ¹	6.55 ²	5.59-	.....	5.40-	5.69	5.59	6.19	5.69	9.99	11.12	11.49
Birmingham*	5.15 ¹⁰	5.95	6.15 ⁷	5.10	.....	5.40	5.25	5.10	6.88	.....	.....	.....	.....
Boston	5.75	6.59 ²⁰	6.94 ⁸	5.70	6.90-	6.08	5.75	5.60	6.19-	9.70-	8.50-	11.15	11.45
Buffalo	5.15	5.95	6.94	5.41	7.14	5.65	5.35	5.15	6.99	9.97	10.00	11.05	11.35
Chicago	5.15	6.20	6.85	5.10	6.94	5.40	5.25	5.10	5.75	9.80	9.90	11.05	11.35
Cincinnati*	5.42-	5.99-	6.39	5.35	.....	5.79	5.64	5.35-	5.96-	9.60-	9.90-	11.05-	11.35-
Cleveland	5.97	6.24	7.00-	5.24	6.35	5.52	5.37	5.64	6.25	9.81	10.11	11.25	11.55
Detroit	5.15	5.95	7.10	5.49	6.43-	5.69	5.64-	5.39	5.91	9.58	9.88	11.01	11.31
Houston	5.33	6.33	7.09	5.49	6.80	5.79	5.68	5.39	5.91	9.58	9.88	11.01	11.31
Indianapolis	6.00	.....	.....	6.10	.....	6.00	5.95	6.10	7.80	10.35-	10.50-	11.50	11.95
Kansas City	.....	.....	.....	.....	7.38	.....	.....	.....	6.15	10.45	10.65	11.65	12.10
Los Angeles	5.75	6.55	7.45	5.70	6.95	6.00	5.85	5.70	6.35	9.85	10.15	11.30	11.60
Memphis	5.90	7.45	8.00 ³	5.95	8.70 ¹⁸	6.00	5.90	5.90	7.55	10.75	10.75	12.45	12.75
Milwaukee	5.93	6.68	.....	5.98	6.80-	6.08	5.93	5.88	6.51	.....	.....	.....	.....
New Orleans*	5.29	6.09	6.94-	5.24	6.32	5.54	5.39	5.24	5.89	9.39	9.69	10.84	11.14
New York	5.60 ¹	6.75	.....	5.55 ¹	6.80	5.65	5.55 ¹	5.55 ¹	6.75	.....	.....	.....	.....
Norfolk	6.55	6.85 ¹	6.99	5.84	8.90 ¹	5.90	5.85	5.75	6.44	9.80	9.90	11.05	11.35
Philadelphia*	6.89 ¹	7.20 ²	.....	6.76	.....	5.90	5.85	5.75	6.44	9.80	9.90	11.05	11.35
Pittsburgh	6.10 ¹³	7.00	.....	6.30 ¹³	.....	6.15 ¹³	6.20 ¹³	6.15 ¹³	7.20 ¹³	.....	.....	.....	.....
Portland	6.05	6.20-	6.85 ²	5.65	6.29	5.65	5.45	5.60	6.21	9.35	9.65	10.80	11.10
San Francisco*	6.35	7.25	.....	5.20	5.95-	5.35	5.25	5.10	5.75	9.25	9.55	10.70	11.00
Seattle	5.15	5.95	6.60	5.20	6.00	5.35	5.25	5.10	5.75	9.25	9.55	10.70	11.00
St. Louis	6.60-	8.40 ²	.....	6.85 ²	.....	6.40 ²	6.60	6.45-	8.60 ¹⁴	12.00 ¹⁸	11.60 ¹⁸	.....	.....
St. Paul*	7.10 ¹	6.70	.....	7.45	8.75	6.10 ²	5.90	7.35 ²	6.75	.....	.....	.....	.....
San Francisco*	5.85	6.70	.....	7.45	8.75	6.10 ²	5.90	7.35 ²	6.75	.....	.....	.....	.....
Seattle	6.20	7.60 ²	7.65 ²	6.15	7.65 ¹⁸	6.10	6.00	6.00	7.55	10.75	10.75	12.45	12.75
St. Louis	6.60 ⁴	8.15 ²	8.40 ²	6.85 ⁴	.....	6.35 ⁴	6.20 ⁴	6.35 ⁴	8.50 ¹⁴	.....	11.60 ¹⁸	.....	13.90 ¹⁸
St. Paul*	5.48	6.25	7.18	5.43	6.68-	5.73	5.58	5.43	6.08	9.58	9.88	11.03	11.33
St. Paul*	5.71	6.51	7.41	5.66	7.54	5.96	5.81	5.66	6.31	9.61	10.11	11.26	11.56

BASE QUANTITIES: (Standard unless otherwise keyed on prices.)
Hot-rolled sheets and strip, hot rolled bars and bar shapes, structural shapes, plate, galvanized sheets and cold-rolled sheets: 2000 to 9999 lb. Cold-finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb.

All H.R. products may be combined to determine quantity bracket. All galvanized sheets may be combined to determine quantity bracket. CR sheets may not be combined with each other or with alv. sheets to determine quantity bracket.

Exceptions:

(1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 300 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 to 5999 lb; (6) 1000 lb and over; (7) 500 to 1499 lb; (8) 400 lb and over; (9) 400 to 9999 lb; (10) 500 to 9999 lb; (11) 400 to 3999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 9999 lb; (16) 6000 lb and over; (17) up to 1999 lb; (18) 1000 to 4999 lb; (19) 1500 to 3499 lb; (20) CR sheets may be combined for quantity; (21) 3 to 24 bundles.

PIG IRON PRICES

Dollars per gross ton. Delivered prices do not include 3 pct tax on freight.

PRODUCING POINT PRICES						DELIVERED PRICES (BASE GRADES)							
Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.	Consuming Point	Producing Point	Rail Freight Rate	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Bethlehem	48.00	48.50	49.00	48.50	.....	Boston	Everett	\$0.50 Arb.	.....	50.50	51.00	.....	.....
Birmingham	41.88	42.38	.....	.....	.....	Boston	Steelton	6.90	.....	52.75	53.25	53.75	60.90
Buffalo	46.00	46.50	47.00	.....	.....	Brooklyn	Bethlehem	4.25	48.58	49.08	51.13	52.13	.....
Chicago	46.00	46.50	46.50	47.00	.....	Cincinnati	Birmingham	6.70	.....	51.13	51.63	52.13	.....
Cleveland	46.00	48.50	46.50	47.00	51.00	Jersey City	Bethlehem	2.63	.....	51.13	51.63	52.13	.....
Danversfield, Tex.	41.50	42.00	42.00	.....	.....	Los Angeles	Genova-Ironton	7.70	53.70	54.20	.....	.....	.....
Duluth	46.00	46.50	46.50	47.00	.....	Mansfield	Cleveland-Toledo	3.33	49.33	49.83	50.33	50.83	54.33
Erie	46.00	46.50	46.50	47.00	.....	Philadelphia	Bethlehem	2.39	50.39	50.89	51.39	51.89	.....
Everett	.....	50.50	51.00	.....	.....	Philadelphia	Swedeland	1.44	51.44	51.94	52.44	52.94	.....
Granite City	47.90	48.40	48.90	.....	.....	Philadelphia	Steelton	3.09	51.09	51.59	52.09	52.59	57.09
Ironton, Utah	46.00	46.50	.....	47.00	.....	Rochester	Buffalo	2.63	48.63	49.13	49.63	.....	.....
Pittsburgh	46.00	46.50	46.50	47.00	.....	San Francisco	Genova-Ironton	7.70	53.70	54.20	.....	.....	.....
Genova, Utah	51.00	49.50	49.50	50.00	.....	Seattle	Genova-Ironton	7.70	53.70	54.20	.....	.....	.....
Sharpsville	46.00	46.50	46.50	47.00	.....	St. Louis	Granite City	0.75 Arb.	48.65	49.15	49.65	.....	.....
Steelton	46.00	46.50	49.00	49.50	54.00	Syracuse	Buffalo	3.58	49.58	50.08	50.58	.....	.....
Struthers, Ohio	46.00	.....	.....	.....	.....				
Swedeland	50.00	50.50	51.00	51.50	.....							
Toledo	46.00	46.50	46.50	47.00	.....							
Troy, N. Y.	46.00	46.50	49.00	.....	54.00								
Youngstown	46.00	46.50	46.50	47.00	.....							

Producing point prices are subject to switching charges; silicon differential (not to exceed 50¢ per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct for foundry iron); phosphorus differentials, a reduction of 88¢ per ton for phosphorus content of 0.70 pct and over; manganese differentials, a charge not to exceed 50¢ per ton for each 0.50 pct manganese

content in excess of 1.00 pct. \$2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and \$1 per ton extra for each additional 0.25 pct nickel.

Silvery iron (blast furnace) silicon 6.01 to 6.50 pct C/L per s.t. f.o.b. Jackson, Ohio—\$57.00; f.o.b. Buffalo, \$58.25. Add \$1.00 per ton for each additional 0.50 pct Si up to 17 pct.

Add 50¢ per ton for each 0.50 pct Mn over 1.00 pct. Add \$1.00 per ton for 0.75 pct or more P. Bessemer ferro-silicon prices are \$1.00 per ton above silvery iron prices of comparable analysis.

Charcoal pig iron base price for low phosphorus \$60.00 per gross ton, f.o.b. Lyle, Tenn. Delivered Chicago, \$68.50. High phosphorus charcoal pig iron is not being produced.

**BOLTS, NUTS, RIVETS, SET
SCREWS****Consumer Prices**(Bolts and nuts, f.o.b. mill Pittsburgh,
Cleveland, Birmingham or Chicago)
Base discount**Machine and Carriage Bolts**

	Pct Off List
	Less Case C.
1/4 in. & smaller x 6 in. & shorter	27 38
9/16 & 5/8 in. x 6 in. & shorter	29 40
3/4 in. & larger x 6 in. & shorter	26 37
All diam, longer than 6 in.	22 34
Lag, all diam, longer than 6 in.	28 39
Lag, all diam x 6 in. & shorter	30 41
Flow bolts	40 —

Nuts, Cold Punched or Hot Pressed

(Hexagons or Square)

1/4 in. and smaller	25 37
9/16 to 1/2 in.	23 35
3/4 to 1 1/4 in. inclusive	23 35
1 1/2 in. and larger	16 29

Semifinished Hexagon Nuts

(Less case lots)

	Reg	Hvy	Lt
1/4 in. and smaller	41	35	41
9/16 to 1/2 in.	36	30	36
3/4 to 1 1/4 in.	31	27	33
1 1/2 in. and larger	21	17	..

In full case lots, 15 pct additional discount.

Stove Bolts

	Pct Off List
Packaged, steel, plain finish	63
Packaged, plated finish	50
Bulk, plain finish	69*

* Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

** Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Large Rivets

(1/2 in. and larger)

Base per 100 lb

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham, Lebanon, Pa. \$7.25

Small Rivets

(7/16 in. and smaller)

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham 43

Cap and Set Screws

(In bulk)

	Pct Off List
Hexagon head cap screws, coarse or fine thread, 1/4 in. thru 3/4 in. x 6 in., SAE 1020, bright	60
1/4 in. through 3/4 in. x 6 in. and shorter high C heat treated	54
Milled studs	23
Flat head cap screws, listed sizes	24
Fillister head cap, listed sizes	43
Set screws, sq head, cup point, 1 in. diam and smaller x 6 in. and shorter	59

C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	4.50¢
0.41 to 0.60 carbon	5.95¢
0.61 to 0.80 carbon	6.55¢
0.81 to 1.05 carbon	8.50¢
1.06 to 1.35 carbon	10.80¢

Worcester, add 0.30¢.

LAKE SUPERIOR ORES

(51.50% Fe; natural content, delivered lower lake ports)

	Per gross ton
Old range, bessemer	\$8.10
Old range, nonbessemer	7.95
Mesabi, bessemer	7.85
Mesabi, nonbessemer	7.70
High phosphorus	7.70

After Jan. 25, 1950, increases or decreases in Upper Lake rail freight, dock handling charges and taxes are for buyers' account.

ELECTRODES

Cents per lb, f.o.b. plant, threaded electrodes with nipples, unbowed

Diam. in in.	Length in in.	Cents Per lb
GRAPHITE		
17, 18, 20	60, 72	17.00¢
8 to 16	48, 60, 72	17.00¢
7	48, 60	18.64¢
6	48, 60	19.95¢
4, 5	40	20.48¢
3	40	21.53¢
2 1/2	24, 30	22.05¢
2	24, 30	24.15¢
CARBON		
40	100, 110	7.65¢
35	65, 110	7.65¢
30	65, 84, 110	7.65¢
24	72 to 104	7.65¢
20	84, 90	7.65¢
17	60, 72	7.65¢
14	60, 72	8.16¢
10, 12	60	8.42¢
8	60	8.67¢

CLAD STEEL

Base prices, cents per pound, f.o.b. mill

	Plate	Sheet
Stainless-carbon		
No. 304, 20 pct.		
Coatesville, Pa. (21)	*28.00	
Washgtn, Pa. (39)	*28.00	
Claymont, Del. (29)	*26.50	
Conshohocken, Pa. (26)		*24.00
New Castle, Ind. (55)	*26.50	*25.50
Nickel-carbon		
10 pct, Coatesville (21)	31.00	
Inconel-carbon		
10 pct, Coatesville (21)	39.00	
Monel-carbon		
10 pct, Coatesville (21)	32.00	
No. 302 Stainless-copper-stainless, Carnegie, Pa. (60)		
		75.00
Aluminized steel sheets, hot dip, Butler, Pa. (7)		
		7.75

* Includes annealing and pickling, or sandblasting.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	\$1.00
18	4	1	—	5	\$1.665
18	4	2	—	—	\$1.13
1.5	4	1.5	8	—	71.5¢
6	4	2	6	—	76.5¢
High-carbon-chromium					
Oil hardened manganese					
Special carbon					
Extra carbon					
Regular carbon					

Warehouse prices on and east of Mississippi are 2 1/4¢ per lb higher. West of Mississippi, 4 1/4¢ higher.

COKE

	Net Ton
Furnace, beehive (f.o.b. oven)	
Connellsville, Pa.	\$14.00 to \$14.50
Foundry, beehive (f.o.b. oven)	
Connellsville, Pa.	\$16.00 to \$16.50
Foundry, oven coke	
Buffalo, del'd	\$24.00
Chicago, f.o.b.	21.00
Detroit, f.o.b.	20.40
New England, del'd	33.40
Seaboard, N. J., f.o.b.	22.00
Philadelphia, f.o.b.	21.25
Swedeland, Pa., f.o.b.	21.20
Painesville, Ohio, f.o.b.	21.90
Erie, del'd	\$21.04 to 21.25
Cleveland, del'd	22.62
Cincinnati, del'd	22.71
St. Paul, f.o.b.	21.00
St. Louis, del'd	22.18
Birmingham, del'd	20.20

FLUORSPAR

Washed gravel fluorspar, f.o.b. cars, Rosiclare, Ill. Base price, per ton net; Effective CaF₂ content:

70% or more	\$39.00
60% or less	36.00

REFRACTORIES

(F.o.b. works)

Fire Clay Brick Carloads, Per 1000
First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add \$5).....\$86.00
No. 1 Ohio.....80.00
Sec. quality, Pa., Md., Ky., Mo., Ill. 80.00
No. 2 Ohio.....72.00
Ground fire clay, net ton, bulk (except Salina, Pa., add \$1.50).....14.00

Silica Brick

Mt. Union, Pa., Ensley, Ala.....\$86.00
Childs, Pa.90.00
Hays, Pa.91.00
Chicago District95.00
Western Utah and Calif.101.00
Super Duty, Hays, Pa., Athens, Tex., Chicago106.00
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)15.00
Silica cement, net ton, bulk, Hays, Pa.17.00
Silica cement, net ton, bulk, Ensley, Ala.16.00
Silica cement, net ton, bulk, Chicago District16.00
Silica cement, net ton, bulk, Utah and Calif.22.50

Chrome Brick

Per Net Ton

Standard chemically bonded, Balt., Chester\$72.00

Magnesite Brick

Standard, Baltimore\$94.00
Chemically bonded, Baltimore83.00

Grain Magnesite

St. 3/4-in. grains

Domestic, f.o.b. Baltimore, in bulk fines removed...\$56.00 to \$57.00
Domestic, f.o.b. Chewelah, Wash., in bulk33.00
in sacks38.00

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢....\$13.00

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.l.f. New York, ocean bags	7.4¢ to 9.9¢
Canadian sponge iron, del'd, in East	10.00¢
Domestic sponge iron, 98+ % Fe, carload lots	9.0¢ to 15.4¢
Electrolytic iron, annealed, 99.5+ % Fe	36.0¢ to 39.5¢
Electrolytic iron unannealed, minus 325 mesh, 99+ % Fe	48.5¢
Hydrogen reduced iron, minus 300 mesh, 98+ % Fe	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+ % Fe	70.0¢ to 11.35
Aluminum	29.00¢
Brass, 10 ton lots	27.75¢ to 31.25¢
Copper, electrolytic, 9.25¢ plus metal value	
Copper, reduced	9.75¢ plus metal value
Cadmium, 100-199 lb	\$2.95
Chromium, electrolytic, 99% min., and quantity	\$3.50
Lead	6.5¢ plus metal value
Manganese	\$2.00¢
Molybdenum, 99%	\$2.65
Nickel, unannealed	75.5¢
Nickel, annealed	81.5¢
Nickel, spherical, unannealed	78.5¢
Silicon	34.00¢
Solder powder, 6.5¢ to 8.5¢ plus met. value	
Stainless steel, 302	75.00¢
Tin	11.00¢ plus metal value
Tungsten, 99%	\$2.90
Zinc, 10 ton lots	20.50¢ to 23.55¢

CAST IRON WATER PIPE

Per net ton

6 to 24-in., del'd Chicago...\$91.80 to \$95.30
6 to 24-in., del'd N. Y....91.00 to 92.00
6 to 24-in., Birmingham...78.00 to 83.50
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less\$108.50 to \$113.00
Class "A" and gas pipe, 35 extra; 4-in. pipe is \$5 a ton above 6-in.

Continued

FERROALLOYS

Ferromanganese

78-82% Mn, maximum contract base price, gross ton, lump size.	
F.o.b. Birmingham	\$174
F.o.b. Niagara Falls, Alloy, W. Va., Welland, Ont.	\$172
F.o.b. Johnstown, Pa.	\$174
F.o.b. Sheridan, Pa.	\$172
F.o.b. Etta, Clairton, Pa.	\$175
\$2.00 for each 1% above 82% Mn, penalty, \$2.15 for each 1% below 78%.	
Briquets—Cents per pound of briquet, delivered, 66% contained Mn.	
Carload, bulk	10.45
Ton lots	12.05

Spiegeleisen

Contract prices gross ton, lump, f.o.b.	
16-19% Mn	19-21% Mn
3% max. Si	3% max. Si
Palmerton, Pa.	\$64.00
Pgh. or Chicago	\$65.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.	
96% min. Mn, 0.2% max. C, 1% max. Si, 2% max. Fe.	
Carload, packed	29.75
Ton lots	31.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.	
Carloads	28
Ton lots	30
Less ton lots	32

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb. of contained Mn.	18.15¢
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Low-Carbon Ferromanganese

Contract price, cents per pound Mn contained, lump size, delivered.			
	Carloads		Ton Less
0.07% max. C, 0.06% P, 90% Mn.....	25.25	27.10	28.30
0.10% max. C.....	24.75	26.60	27.80
0.15% max. C.....	24.25	26.10	27.30
0.30% max. C.....	23.75	25.60	26.80
0.50% max. C.....	23.25	25.10	26.30
0.75% max. C.....			
7.00% max. Si.....	20.25	22.10	23.30

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C. For 2% max. C, deduct 0.2¢.	
Carload bulk	8.95
Ton lots	10.60
Briquet, contract basis carlots, bulk delivered, per lb. of briquet.	10.30
Ton lots	11.90

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., \$77.00 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., \$73.50. Add \$1.00 per ton for each additional 0.50% Si up to and including 18%. Add \$1.00 for each 0.50% Mn over 1%.	
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Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.	
96% Si, 2% Fe	20.70
97% Si, 1% Fe	21.10

Silicon Briquets

Contract price, cents per pound of briquet bulk, delivered, 40% Si, 1 lb Si briquets.	
Carload, bulk	6.30
Ton lots	7.90

Electric Ferrosilicon

Contract price, cents per pound contained Si, lump, bulk, carloads, delivered.	
25% Si	17.00
50% Si	11.30
85% Si	14.55
90-95% Si	16.50

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.			
	Cast	Turnings	Distilled
Ton lots	\$2.05	\$2.95	\$3.75
Less ton lots...	2.40	3.30	4.55

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered. (65-72% Cr, 2% max Si.)	
0.06% C	28.75
0.10% C	28.25
0.15% C	28.00
2.00% C	27.00
65-69% Cr, 4-9% C	30.50
62-66% Cr, 4-6% C, 6-9% Si	21.35

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.	
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S. M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.	
High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.	
Carloads	21.60
Ton lots	23.75
Less ton lots	25.25
Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.	
Carloads	27.75
Ton lots	30.05
Less ton lots	31.85

Chromium Metal

Contract prices, per lb chromium contained packed, delivered, ton lots. 97% min. Cr, 1% max. Fe.	
0.20% max. C	\$1.09
0.50% max. C	1.05
.00 min. C	1.04

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.)	
Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down, bulk 2-in. x down, 20.50¢ per lb of contained Cr plus 11.30¢ per lb of contained Si.	
Bulk 1-in. x down, 20.65¢ per lb contained Cr plus 11.50¢ per lb contained Si.	

Calcium-Silicon

Contract price per lb of alloy, lump, delivered.	
30-33% Ca, 60-65% Si, 3.00% max. Fe.	
Carloads	17.90
Ton lots	21.00
Less ton lots	22.50

Calcium-Manganese-Silicon

Contract prices, cents per lb of alloy, lump, delivered.	
16-20% Ca, 14-18% Mn, 53-59% Si.	
Carloads	19.25
Ton lots	21.55
Less ton lots	22.55

CMSZ

Contract price, cents per pound of alloy, delivered.	
Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.	
Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.	
Ton lots	19.75
Less ton lots	21.00

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. V-5: 38-42% Cr, 17-19% Si, 8-11% Mn.	
Ton lots	15.75¢
Less ton lots	17.00¢

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.	
Carload packed	17.00¢
Ton lots to carload packed	18.00¢
Less ton lots	19.50¢

SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.	
Ton lots	17.25
Less ton lots	18.50


Other Ferroalloys

AlsiFer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.	
Carload	7.65¢
Ton lots	9.05¢
Calcium molybdate, 45-40%, f.o.b. Langeloth, Pa., per pound contained Mo	96¢
Ferrocolumbium, 50-60%, 2 in x D, contract basis, delivered, per pound contained Cb.	
Ton lots	\$3.50
Less ton lots	3.55
Ferro-Tantalum-columbium, 30% Ta, 40% Cb, 0.30 C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta	\$2.67
Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo	\$1.13
Ferrophosphorus, electrolytic, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., \$3 unitage, per gross ton	\$65.00
10 tons to less carload	75.00
Ferrotitanium, 40%, regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	\$1.28
Ferrotitanium, 25%, low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	\$1.40
Less ton lots	\$1.45
Ferrotitanium, 15 to 19%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton	\$167.00
Ferrotungsten, standard, lump or ¼ x down, packed, per pound contained W, 5 ton lots, delivered	\$2.25
Ferrovanadium, 35-55%, contract basis, delivered, per pound, contained V.	
Openhearth	\$2.90
Crucible	3.00
High speed steel (Primos)	3.10
Molybdc oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa.	95¢
bags, f.o.b. Washington, Pa., Langeloth, Pa.	94¢
Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound	
Carload, bulk, lump	11.00¢
Ton lots, bulk, lump	11.50¢
Less ton lots, lump	12.25¢
Vanadium pentoxide, 88-92% V ₂ O ₅ , contract basis, per pound contained V ₂ O ₅	\$1.20
Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.	
Ton lots	21.00¢
Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.	
Carload, bulk	6.60¢
Boron Agents	
Contract prices per lb of alloy, del.	
Boronil, f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B	\$4.25
Bortam, f.o.b. Niagara Falls	
Ton lots, per pound	45¢
Less ton lots, per pound	50¢
Carbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4.5-7.5% f.o.b. Suspension Bridge, N. Y., freight allowed.	
Ton lots, per pound	10.00¢
Ferroboration, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots	\$1.20
F.o.b. Wash., Pa.; 100 lb, up	
10 to 14% B	.75
14 to 19% B	1.20
19% min. B	1.50
Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.	
No. 1	93¢
No. 6	63¢
No. 79	45¢
Manganese-Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, delivered.	
Ton lots	\$1.46
Less ton lots	1.57
Nickel-Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered.	
Less ton lots	\$1.80
Silicaz, contract basis, delivered.	
Ton lots	45.00¢

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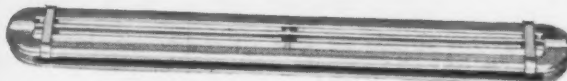
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NEWS OF USED, REBUILT AND SURPLUS MACHINERY

Price Worries—Some dealers in the Cleveland area predict that if prices continue to advance at the present rate, the used machinery market will need OPA in another six months. The general consensus of opinion is that sales conditions are worse now than they were in 1942.

MDNA Resolution—At a special meeting of the board of directors of the Machinery Dealers National Assn. on Aug. 14 at the Hotel Statler, Detroit, the association passed a resolution recommending that the government put price controls on used machinery immediately. The association takes the stand that such a move would be instrumental in preserving a sound national economy and checking rapidly increasing prices on used machinery.

In the event that nothing is done concerning the association's recommendation by Oct 12, a meeting will be held on that date in Toronto, Canada, to further expedite the matter. The Aug. 14 meeting was attended by I. Gottsman, NSRB member. The future meeting will be attended by members of the NMTBA and MDNA.

Bridgeport Prosperity—For the last 6 weeks the used machinery dealers in this area have enjoyed a renewed activity. Sales for this period as compared with that of last year are reported to be anywhere from 60 to 80 pct better, depending upon the dealer. Although the preponderance of buying is from the larger firms, it is reported that the smaller manufacturers are now willing to spend more to get the machines they want.

As far as the Bridgeport dealers can ascertain, there have been no definite war contracts awarded to firms in this area. The feeling of the local industry, they say, is

that it is smarter to get stocked up on production items now than wait till contracts materialize. In this way they hope to avoid getting caught short, as they did during the last war.

Production Items Wanted—Medium and large size production items such as vertical boring mills, milling machines, turret lathes, grinders, planers, and automatic screw machines are experiencing the most demand in the Bridgeport area. However, sales of toolroom equipment have also increased. Electrical dealers here report that sales have risen from 10 to 40 pct on all items.

JANMAT Equipment—Responsible sources indicate that the bulk of JANMAT equipment has already been distributed. The remaining inventory is reported to consist of highly specialized equipment that will continue to be held. JANMAT reserves have already been used to equip the Navy gas turbine plant operated by Westinghouse at Kansas City. Much of the general purpose type of equipment has already been sold to the trade.

Aaron For Reliability—Aaron Machinery Co., Inc., New York machinery dealer, consistently has used the slogan, "Aaron For Reliability," as a headline for its advertisements. The slogan appears as the regular headline of Aaron advertisements in THE IRON AGE.

Noting that the type had become worn, a zealous typesetter reset the letters for a recent advertisement. He was less reliable than the machinery firm, however. Instead of the usual slogan, the type he set read, "Aaron For Liability."

Although the entire advertisement was read by two proofreaders, none noted the missing two letters that make such a difference in meaning, and the advertisement appeared with the error uncorrected. THE IRON AGE offers its sincere apologies for this error.